I.

DATE IN	SUSPENSE	ENGINEER	LOGGED IN	TYPE	APP NO.
06/05/09		W. Jones	06/05/09	SWD	pKAA0915635221

ABOVE THIS LINE FOR DIVISION USE ONLY

1181

30-021-20494
Mitchell 1830 092F
Hess Corporation
495

RECEIVED
2009 JUN 5 AM 9 38

NEW MEXICO OIL CONSERVATION DIVISION

- Engineering Bureau -

1220 South St. Francis Drive, Santa Fe, NM 87505

ADMINISTRATIVE APPLICATION CHECKLIST

THIS CHECKLIST IS MANDATORY FOR ALL ADMINISTRATIVE APPLICATIONS FOR EXCEPTIONS TO DIVISION RULES AND REGULATIONS WHICH REQUIRE PROCESSING AT THE DIVISION LEVEL IN SANTA FE

Application Acronyms:

[NSL-Non-Standard Location] [NSP-Non-Standard Proration Unit] [SD-Simultaneous Dedication]
[DHC-Downhole Commingling] [CTB-Lease Commingling] [PLC-Pool/Lease Commingling]
[PC-Pool Commingling] [OLS - Off-Lease Storage] [OLM-Off-Lease Measurement]
[WFX-Waterflood Expansion] [PMX-Pressure Maintenance Expansion]
[SWD-Salt Water Disposal] [IPI-Injection Pressure Increase]
[EOR-Qualified Enhanced Oil Recovery Certification] [PPR-Positive Production Response]

[1] **TYPE OF APPLICATION** - Check Those Which Apply for [A]

[A] Location - Spacing Unit - Simultaneous Dedication
☐ NSL ☐ NSP ☐ SD

Check One Only for [B] or [C]

[B] Commingling - Storage - Measurement
☐ DHC ☐ CTB ☐ PLC ☐ PC ☐ OLS ☐ OLM

[C] Injection - Disposal - Pressure Increase - Enhanced Oil Recovery
☐ WFX ☐ PMX ☒ SWD ☐ IPI ☐ EOR ☐ PPR

[D] Other: Specify _____

[2] **NOTIFICATION REQUIRED TO:** - Check Those Which Apply, or Does Not Apply

[A] ☒ Working, Royalty or Overriding Royalty Interest Owners

[B] ☒ Offset Operators, Leaseholders or Surface Owner

[C] ☒ Application is One Which Requires Published Legal Notice

[D] ☐ Notification and/or Concurrent Approval by BLM or SLO
U.S. Bureau of Land Management - Commissioner of Public Lands, State Land Office

[E] ☒ For all of the above, Proof of Notification or Publication is Attached, and/or,

[F] ☒ Waivers are Attached

[3] **SUBMIT ACCURATE AND COMPLETE INFORMATION REQUIRED TO PROCESS THE TYPE OF APPLICATION INDICATED ABOVE.**

[4] **CERTIFICATION:** I hereby certify that the information submitted with this application for administrative approval is **accurate** and **complete** to the best of my knowledge. I also understand that **no action** will be taken on this application until the required information and notifications are submitted to the Division.

Note: Statement must be completed by an individual with managerial and/or supervisory capacity.

Rita C. Smith	Rita C. Smith Digitally signed by Rita C. Smith DN: cn=Rita C. Smith, o=Hess Corp, ou=Engineering, email=rsmith@hess.com, c=US Date: 2009.06.02 09:29:05 -05'00'	Engineering Tech	06-01-09
Print or Type Name	Signature	Title	Date

Rita C Smith

rsmith@hess.com
e-mail Address

II.

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL
RESOURCES DEPARTMENT

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

FORM C-108
Revised June 10, 2003

APPLICATION FOR AUTHORIZATION TO INJECT

I. PURPOSE: _____ Secondary Recovery _____ Pressure Maintenance __x__ Disposal _____ Storage
Application qualifies for administrative approval? __x__ Yes _____ No

II. OPERATOR: Hess Corporation

ADDRESS: P.O. Box 840 Seminole, TX 79360

CONTACT PARTY: Danny Holcomb cell 575-650-0316 PHONE: (575)673-6700
Rita C. Smith office (432)758-6726 cell(432)209-1084

III. WELL DATA: Complete the data required on the reverse side of this form for each well proposed for injection. Additional sheets may be attached if necessary.

IV. Is this an expansion of an existing project? _____ Yes __x__ No
If yes, give the Division order number authorizing the project: _____

V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.

VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.

VII. Attach data on the proposed operation, including:

1. Proposed average and maximum daily rate and volume of fluids to be injected;
2. Whether the system is open or closed;
3. Proposed average and maximum injection pressure;
4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and,
5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).

*VIII. Attach appropriate geologic data on the injection zone including appropriate lithologic detail, geologic name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such sources known to be immediately underlying the injection interval.

IX. Describe the proposed stimulation program, if any.

*X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division, they need not be resubmitted).

*XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.

XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water.

XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.

XIV. Certification: I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.

NAME: Rita Smith TITLE: Engineering Tech

SIGNATURE: Rita C. Smith Digitally signed by Rita C. Smith DN: cn=Rita C. Smith, o=Hess Corp, ou=Engineering, email=rsmith@hess.com, c=US Date: 2009.05.29 13:23:48 -05'00' DATE: 05/27/2009

E-MAIL ADDRESS: rsmith@hess.com

* If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be resubmitted. Please show the date and circumstances of the earlier submittal: 11/2008 Gloretta formation did not have the 10,000 mg/l or more

DISTRIBUTION: Original and one copy to Santa Fe with one copy to the appropriate District Office

III. WELL DATA

A. The following well data must be submitted for each injection well covered by this application. The data must be both in tabular and schematic form and shall include:

(1) Lease name; Well No.; Location by Section, Township and Range; and footage location within the section.

(2) Each casing string used with its size, setting depth, sacks of cement used, hole size, top of cement, and how such top was determined.

(3) A description of the tubing to be used including its size, lining material, and setting depth.

(4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used.

Division District Offices have supplies of Well Data Sheets which may be used or which may be used as models for this purpose. Applicants for several identical wells may submit a "typical data sheet" rather than submitting the data for each well.

B. The following must be submitted for each injection well covered by this application. All items must be addressed for the initial well. Responses for additional wells need be shown only when different. Information shown on schematics need not be repeated.

(1) The name of the injection formation and, if applicable, the field or pool name.

(2) The injection interval and whether it is perforated or open-hole.

(3) State if the well was drilled for injection or, if not, the original purpose of the well.

(4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations.

(5) Give the depth to and the name of the next higher and next lower oil or gas zone in the area of the well, if any.

XIV. PROOF OF NOTICE

All applicants must furnish proof that a copy of the application has been furnished, by certified or registered mail, to the owner of the surface of the land on which the well is to be located and to each leasehold operator within one-half mile of the well location.

Where an application is subject to administrative approval, a proof of publication must be submitted. Such proof shall consist of a copy of the legal advertisement which was published in the county in which the well is located. The contents of such advertisement must include:

(1) The name, address, phone number, and contact party for the applicant;

(2) The intended purpose of the injection well; with the exact location of single wells or the Section, Township, and Range location of multiple wells;

(3) The formation name and depth with expected maximum injection rates and pressures; and,

(4) A notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, 1220 South St. Francis Dr., Santa Fe, New Mexico 87505, within 15 days.

NO ACTION WILL BE TAKEN ON THE APPLICATION UNTIL PROPER PROOF OF NOTICE HAS BEEN SUBMITTED.

NOTICE: Surface owners or offset operators must file any objections or requests for hearing of administrative applications within 15 days from the date this application was mailed to them.

III.

Side 1

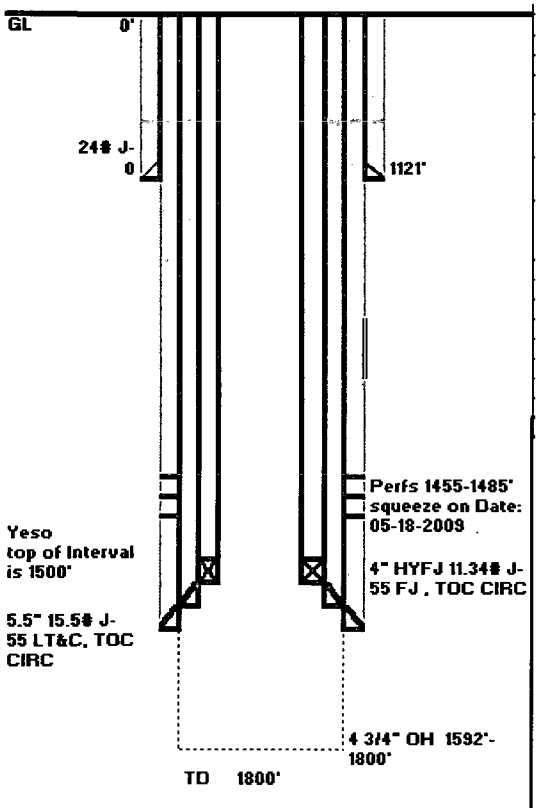
INJECTION WELL DATA SHEET

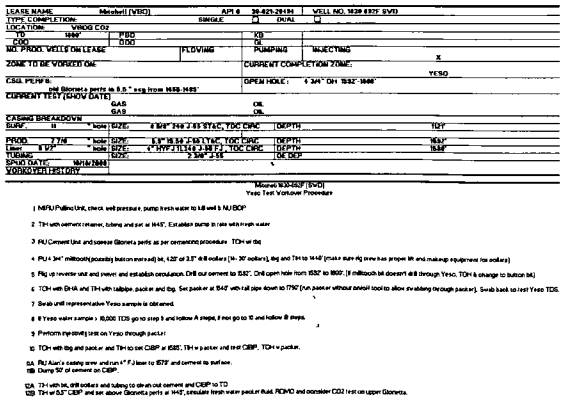
OPERATOR: Hess Corporation

WELL NAME & NUMBER: Mitchell 1830 092F API # 30-021-20494

WELL LOCATION: 1920' FNL & 1970' FWL | F | 9 | 18N | 30E

FOOTAGE LOCATION | UNIT LETTER | SECTION | TOWNSHIP | RANGE





LEASE NAME: Mitchell (YESO) | API #: 30-021-20494 | WELL NO. 1830 092F SWD

TYPE COMPLETION: SINGLE ☐ DUAL ☐

LOCATION: YRDG CO2

TD	1800'	PBD	KB
COD		DTD	GL

NO. PROD. WELLS ON LEASE	FLOWING	PUMPING	INJECTING
ZONE TO BE VORSED ON:		CURRENT COMPLETION ZONE:	X YESO
CSG. PERFS:		OPEN HOLE:	4 3/4" OH 1592'-1800'

Old Glorieta perfs at 5.5" csg from 1455-1485'

CURRENT TEST (VORW DATE)

	GAS	OIL	
	GAS	OIL	

CASING BREAKDOWN

SURF.	11	" hole	SIZE:	8 5/8" 24# J-55 ST&C, TOC CIRC	DEPTH	1121'
PROD.	7 7/8	" hole	SIZE:	5 1/2" 15.5# J-55 LT&C, TOC CIRC	DEPTH	1530'
Liner	6 1/4	" hole	SIZE:	4" HYFJ 11.34# J-55 FJ , TOC CIRC	DEPTH	1530'
TUBING			SIZE:	2 3/8" J-55	DE DEP	

SPUD DATE: 10/16/2008

VORKOVER HISTORY

Mitchell 1830-092F (SWD)
Yeso Test Vorkover Procedure

1 MIRU Pulling Unit, check well pressure, pump fresh water to kill well & NU BOP

2 TH with cement retainer, tubing and put at 1445'. Establish pump in rate with fresh water

3 RU Cement Unit and squeeze Glorieta perfs as per cementing procedure TOH w/ tbg

4 PU 4 3/4" millmooth (possibly button mmoad) bit, 4.25' or 3.5" drill collars (14-30' collars), tbg and TIH to 1440' (make sure rig crew has proper lift and makeup equipment for collars)

5 Rig up reverse unit and reverse and establish circulation. Drill out cement to 1532'. Drill open hole from 1532' to 1800'. (If millmooth bit doesn't drill through Yeso, TOH & change to button bit)

6 TOH with DHA and TIH with tailpipe, packer and tbg. Set packer at 1540' with tail pipe down to 1790' (run packer without swivel tool to allow swabbing through packer). Swab back to test Yeso TDS.

7 Swab until representative Yeso sample is obtained.

8 If Yeso water sample > 10,000 TDS go to step 9 and follow A steps, if not go to 10 and follow B steps.

9 Perform injectivity test on Yeso through packer

10 TOH with tbg and packer and TIH to set CIBP at 1585', TIH w packer and test CIBP, TOH w packer.

9A RU Alan's casing crew and run 4" FJ liner to 1570' and cement to surface.
9B Dump 50' of cement on CIBP.

10A TIH with bit, drill collars and tubing to drill out cement and CIBP to TD
10B TIH w/ 5.5" CIBP and set above Glorieta perfs at 1445', circulate fresh water packer fluid, RDMO and consider CO2 test on upper Glorieta.

WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 11" Casing Size: 8 5/8"

Cemented with: 470 sx. *or* _____ ft^3

Top of Cement: surface 0' Method Determined: Circ

Intermediate Casing

Hole Size: 7 7/8" Casing Size: 5 1/2"

Cemented with: 130 sx. *or* _____ ft^3

Top of Cement: surf Method Determined: circ

Total Depth: 1592'

Production Casing

Proposed Liner

Hole Size: 5 1/2" csg Casing Size: 4" HYFJ 11.34 #

Cemented with: 75 sx. *or* _____ ft^3

Top of Cement: SURFACE Method Determined: CIRC

Total Depth: 1540 approximate

Injection Interval

OH 1592' feet to 1800'

(Perforated or Open Hole; indicate which)

INJECTION WELL DATA SHEET

Tubing Size: 2 3/8" Lining Material: TK 99 IPC

Type of Packer: 4" Weatherford ASI-X

Packer Setting Depth: 1500' (approximate)

Other Type of Tubing/Casing Seal (if applicable): _____

Additional Data

1. Is this a new well drilled for injection? _____ Yes X No

   If no, for what purpose was the well originally drilled? producing well

2. Name of the Injection Formation: Yeso

3. Name of Field or Pool (if applicable): West Brave Dome CO2 Gas

4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail, i.e. sacks of cement or plug(s) used. yes, the Glorieta perforated from 1455' to 1485' in the 5 1/2" csg. squeezed cement w/150sx(Date:May 18, 2009) 4" FJ liner will be run to ~ 1540' and cemented with 75 sacks of cement

5. Give the name and depths of any oil or gas zones underlying or overlying the proposed injection zone in this area:

   Depth:San Andres formation(possible CO2 indication)1160' ftMD to 1400'

   Depth: Top Tubb Sandstone (CO2 Source) 1915' ft MD

DISTRICT I
1625 N. French Dr., Hobbs, NM 88240

DISTRICT II
1301 W. Grand Avenue, Artesia, NM 88210

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION

1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

Form C-102
Revised October 12, 2005

Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30-021-20494	96387	West Bravo Dome CO2 GAS

Property Code	Property Name	Well Number
133	MITCHELL 1830	092F

OGRID No.	Operator Name	Elevation
141930	HESS CORPORATION	4345'

Surface Location

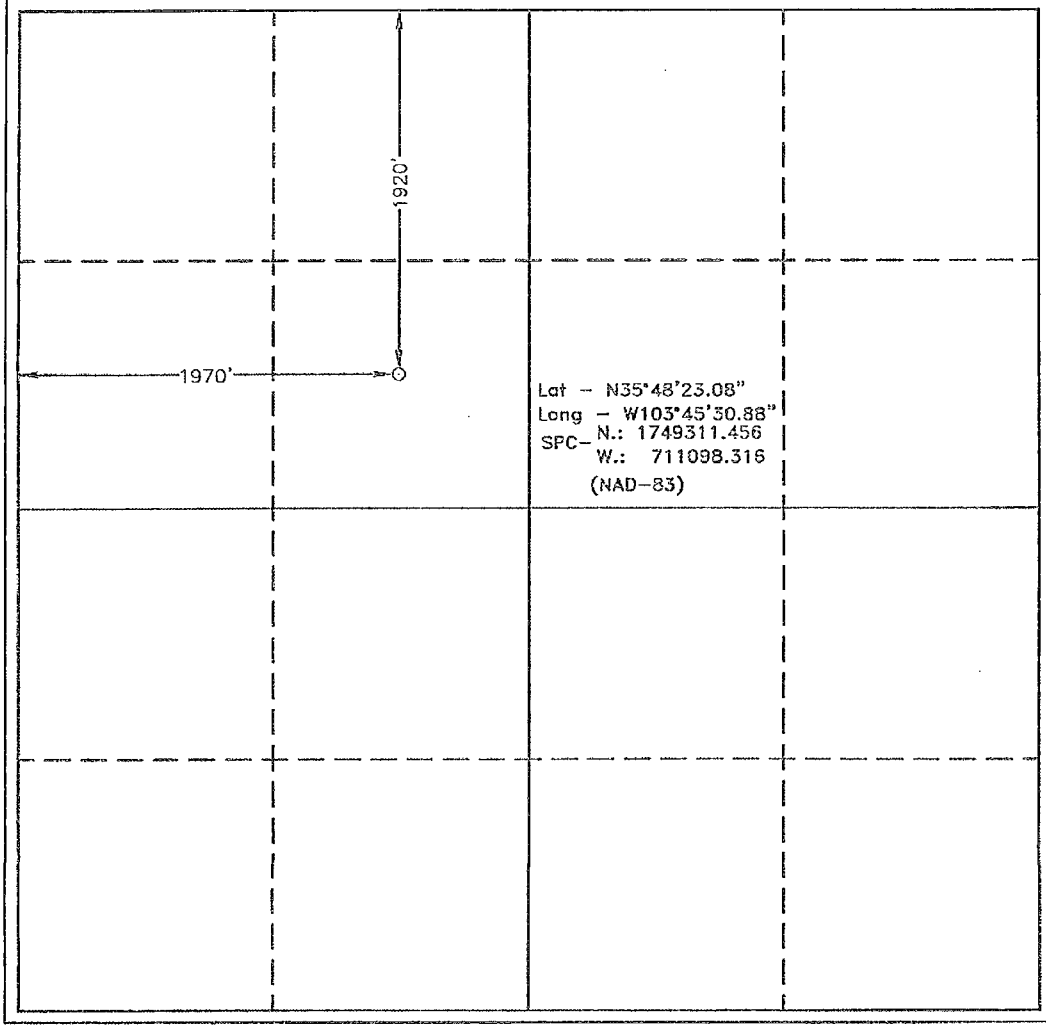
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
F	9	18 N	30 E		1920	NORTH	1970	WEST	HARDING

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Carol J. Moore 5/19/08
Signature Date

Carol J. Moore Regulatory Analyst
Printed Name

SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervison, and that the same is true and correct to the best of my belief.

APRIL 12, 2008
Date Surveyed

Signature & Seal of Professional Surveyor

W.O. Num. 18812

Certificate No. Gary L. Jones 7977

BASIN SURVEYS

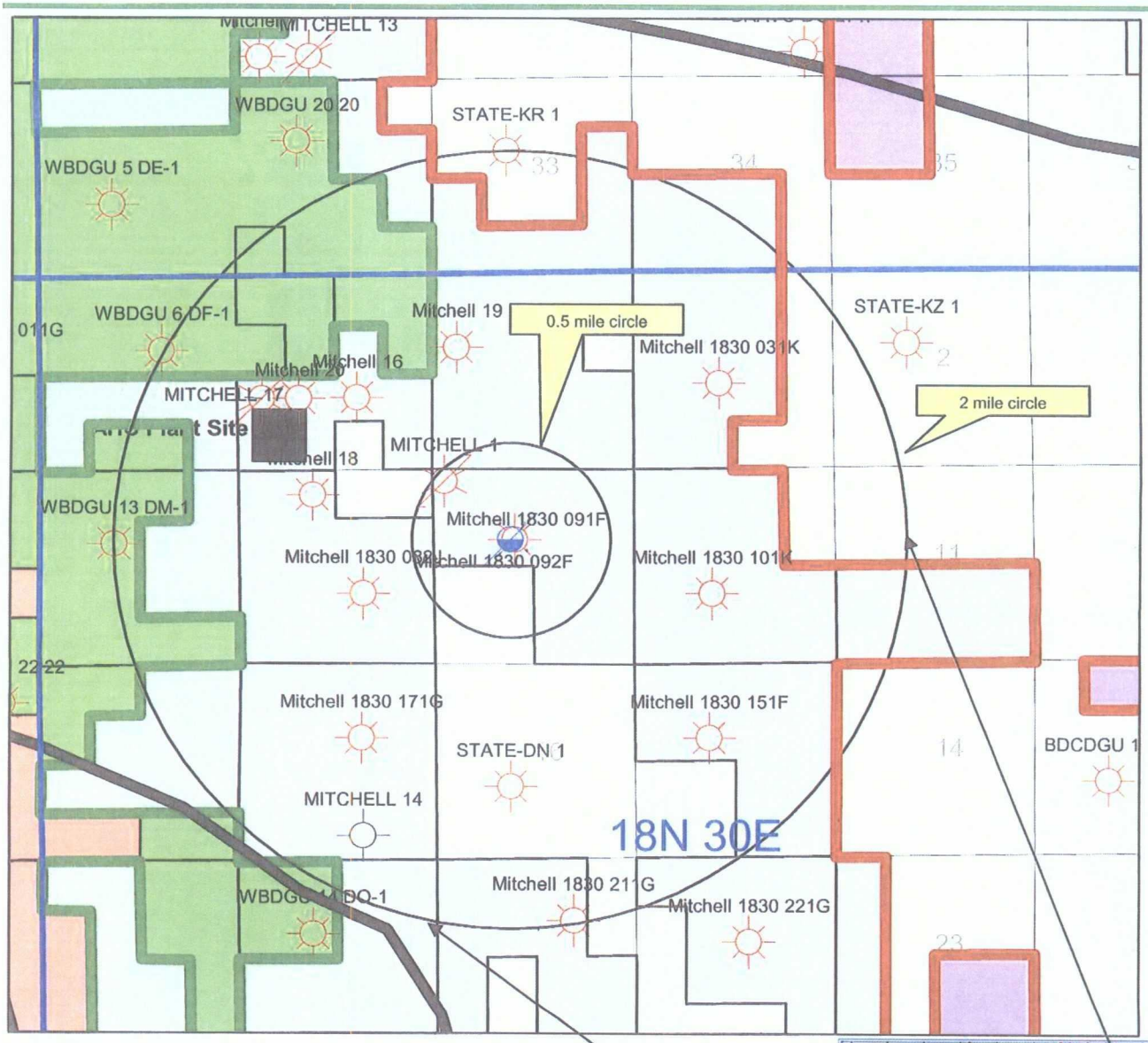
IV.

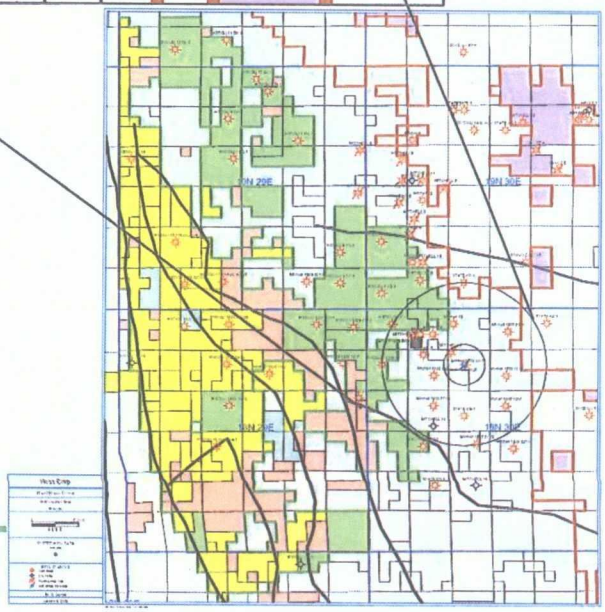
IV. Expansion of an existing project? NO

V.

Americas Production – West Bravo Dome

0.5 Mile Radius Situation Map





•There are only two wells within the 0.5 mile radius from SWD well, which is the Mitchell-1 well (abandoned) and the 1830-091F (Gas Producer from the Tubb)

June 1, 2009

VI.

Submit 3 Copies To Appropriate District Office
District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Ave., Artesia, NM 88210
District III
1000 Rio Brazos Rd., Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-103
June 19, 2008

WELL API NO. 30-021-20443

5. Indicate Type of Lease STATE ☐ FEE ☒

6. State Oil & Gas Lease No.

SUNDRY NOTICES AND REPORTS ON WELLS
(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)

7. Lease Name or Unit Agreement Name: Mitchell

1. Type of Well: Oil Well ☐ Gas Well ☒ Other CO2 Gas Well

8. Well Number 091F

2. Name of Operator: Hess Corporation

9. OGRID Number 495

3. Address of Operator: P.O. Box 840, Seminole, Texas 79360

10. Pool name or Wildcat West Bravo Dome CO2 Gas

4. Well Location
Unit Letter F : 1920 feet from the North line and 2170 feet from the West line
Section 9 Township 18N Range 30E NMPM County Harding

11. Elevation *(Show whether DR, RKB, RT, GR, etc.)* 4362' GR

12. Check Appropriate Box to Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
PERFORM REMEDIAL WORK ☐	PLUG AND ABANDON ☐	REMEDIAL WORK ☐	ALTERING CASING ☐
TEMPORARILY ABANDON ☐	CHANGE PLANS ☐	COMMENCE DRILLING OPNS. ☐	P AND A ☐
PULL OR ALTER CASING ☐	MULTIPLE COMPL ☐	CASING/CEMENT JOB ☐	
DOWNHOLE COMMINGLE ☐			
OTHER: ☐		OTHER: Completion ☒	

13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 1103. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

8/31
MI RU Correlate Logs to Gamma. Perfed in FiberGlass at 1983.5. Perf 1928-1988 KB ft w/ HSD 3.375" HyperJet 3406, 4spf, 120 phasing, 0.49 EHD 15" TTP. RD MO **9/15** MI RU, Job Start 13:59:25, Pumping Time 28.74 mins, Total Time 44.73. Base Fluid 7% KCl Frac Water Guar (45cp). Stages 1. 10% HCl Spikes at the Start, then good injectivity then a spike right before the acid hits. Reduce Rate for Last Spike and keep pumping in. 2. Breakdown 3. Pad Stage open Fracture w/ 65.7% CO2 4. 2ppg Premium Brown 12/20 w/ 53.8% CO2 5. 4ppg Premium Brown 12/20 w/ 51.0% CO2 6. 6ppg Premium Brown 12/20 w/ 35.9% 7. 8ppg Premium Brown 12/20 w/ 34.7% CO2 8. Flush 1.5-2 bbl above top perf, w/ 29.2% CO2. Max Treating Pressure 2105 psi, Average Treating Pressure 1721 psi , Max Well Head Rate 41.3 bpm. Slurry Volume 415.76 bbls, CO2 Mass 59.2 Tons, and 60,000lbs Sand Pumped over the Duration of the Frac. Proppant in Wellbore 2,000lbs with 58,000 lbs in formation. These number are approximate the densometer went down during the job. Estimate from the Blender Screws. Load to Recover 317.05 bbls. Shut down. Opened valve on Flowback tee and began immediate flowback with two tees to get to Frac tank. Shut in after the 15mins. Pressure (800 psi drop down to 450 psi for the initial flowback) RD MO. Continue Flowback . Flowed 9/15 15:30 w/400 psi (1/2"choke) End Flow 9/18 18:45 70 hrs total, Recovered 80BLW. **9/22** MI RU Slick Line, Tagged Fill at 1977.0 KBft (6ft kb), Sand 11.0 ft Above the Bottom Perf, RD MO

Spud Date: 06/17/2007 Rig Release Date: 06/21/2007

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNATURE_____ TITLE Engineering Technician DATE Nov. 18, 2008

Type or print name Rita C. Smith E-mail address: rsmith@hess.com PHONE: (432) 758-6726

For State Use Only

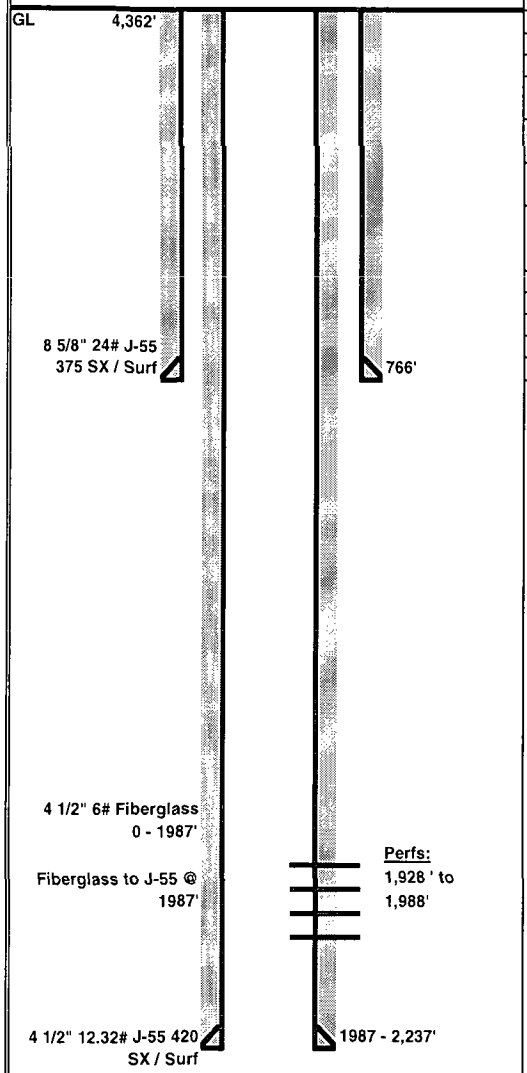
APPROVED BY:_____ TITLE_____ DATE_____

Conditions of Approval (if any):

Offset well

WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC



LEASE NAME	Mitchell	API #	30-021-20443	WELL NO. 1830-091F	
TYPE COMPLETION:	[x] SINGLE	[ ] DUAL	[ ]		
LOCATION:	1920' FNL 2170' FWL Sec 9 T 18N R 30E				
TD 2,237'	PBD 2,203	KB	DF		
COD	DOD	GL 4,362'			
NO. PROD. WELLS ON LEASE	FLOWING X	PUMPING	INJECTION		
ZONE TO BE WORKED ON:	CURRENT COMPLETION ZONE: Tubb				
CSG. PERFS: 1928' - 1988'	OPEN HOLE :				
CURRENT TEST (SHOW DATE)	GAS	OIL			
	GAS	OIL			
CASING BREAKDOWN					
SURF. 12 1/4" Hole	SIZE: 8 5/8" 24# J-55 375 SX / Surf	DEPTH 766'			
PROD. 7 7/8" hole	SIZE: 4 1/2" 6# Fiberglass	DEPTH 0 - 1987'			
PROD. 7 7/8" hole	SIZE: 4 1/2" 12.32# J-55 420 SX / Surf	DEPTH 1987 - 2,237'			
TUBING	SIZE:	OE DEPTH			
WORKOVER HISTORY					
PREPARED BY: DSS	UPDATED: 06/01/2009 RPP				

ORIGINAL

FORM C-103

NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico

RECEIVED AUG 2 1941

MISCELLANEOUS REPORTS ON WELL

Submit this report in triplicate to the Oil Conservation Commission or its proper agent within ten days after the work specified is completed. It should be signed and sworn to before a notary public for reports on beginning drilling operations, results of shooting well, results of test of casing shut-offs, result of plugging of well, and other important operations, even though the work was witnessed by an agent of the commission. Reports on minor operations need not be signed and sworn to before a notary public. See additional instructions in the Rules and Regulations of the Commission.

Indicate nature of report by checking below:

REPORT ON BEGINNING DRILLING OPERATIONS		REPORT ON REPAIRING WELL	
REPORT ON RESULT OF SHOOTING OR CHEMICAL TREATMENT OF WELL		REPORT ON PULLING OR OTHERWISE ALTERING CASING	
REPORT ON RESULT OF TEST OF CASING SHUT-OFF		REPORT ON DEEPENING WELL	
REPORT ON RESULT OF PLUGGING OF WELL	X		

Solano, New Mexico (Place) August 8, 1941 (Date)

OIL CONSERVATION COMMISSION,
Santa Fe, New Mexico

Gentlemen:

Following is a report on the work done and the results obtained under the heading noted above at the Carbonic Chemicals Corporation (Company or Operator) Well No. 1 in the NW¼ of the NW¼ (Lease) of Sec. 9 T. 18 R. 30 N. M. P. M., Mitchell Field, Harding County

The dates of this work were as follows:

Notice of intention to do the work was ~~(was not)~~ submitted on Form C-102 on 8-6-41 19____ and approval of the proposed plan was (was not) obtained. (Cross out incorrect words.)

DETAILED ACCOUNT OF WORK DONE AND RESULTS OBTAINED

Run 2 inch tubing to bottom at bottom hole 1638 feet. Established top hole returns with water; run in 35 sacks cement; plug back from total depth to 1318 feet, or back to 258 feet in pipe. We gun perforated casing at 625 feet top hole returns with water; run 2 tons of Marco native mud and 100 sacks of El Toro cement. Mud and cement circulating to surface. Shut in casing 750 pounds pressure leaving 100 feet cement in pipe. This work was done by Halliburton Cementing Company

Witnessed by _____ Name _____ Company _____ Title

Subscribed and sworn to before me this 12 day of August, 1941

Edwin H. Hughes
Notary Public

My Commission expires May 7 1944

I hereby swear or affirm that the information given above is true and correct.

Name J. S. Thomson

Position

Representing
Company or Operator

Address

Remarks:

Roy Yarbrough
Name
OIL & GAS INSPECTOR
Title

FORM C-105

NEW MEXICO OIL CONSERVATION COMMISSION

Santa Fe, New Mexico

WELL RECORD

Mail to Oil Conservation Commission, Santa Fe, New Mexico, or its proper agent not more than twenty days after completion of well. Follow instructions in the Rules and Regulations of the Commission. Indicate questionable data by following it with (?). SUBMIT IN TRIPLICATE.

AREA 640 ACRES
LOCATE WELL CORRECTLY

Carbonic Chemicals Corporation — Company or Operator — Address: Solano, New Mexico

Lease: Mitchell — Well No. 1 — Unit — of Sec. 9 — T. 10 — R. 30 — N. M. P. M. — Field: Harding — County:

Well is 330 feet south of the North line and 330 feet East of the East line of Said Section

If State land the oil and gas lease is No. _____ Assignment No. _____

If patented land the owner is T. S. Mitchell & Son, Inc. Address Albert, New Mexico

If Government land the permittee is _____ Address _____

The Lessee is _____ Address _____

Drilling commenced 11/19/38, 19__ Drilling was completed _____, 19__

Name of drilling contractor A. J. Waddell Address Unknown

Elevation above sea level at top of casing 4427 feet.

The information given is to be kept confidential until _____, 19__

OIL SANDS OR ZONES

No. 1, from _____ to _____ No. 4, from _____ to _____

No. 2, from _____ to _____ No. 5, from _____ to _____

No. 3, from _____ to _____ No. 6, from _____ to _____

IMPORTANT WATER SANDS

Include data on rate of water inflow and elevation to which water rose in hole.

No. 1, from _____ to _____ feet.

No. 2, from _____ to _____ feet.

No. 3, from _____ to _____ feet.

No. 4, from _____ to _____ feet.

CASING RECORD

SIZE	WEIGHT PER FOOT	THREADS PER INCH	MAKE	AMOUNT	KIND OF SHOE	CUT & FILLED FROM	PERFORATED FROM	TO	PURPOSE
12 1/4	54			821' 10"					
8	36			623' 2"					
6 5/8	24			842' 9"					
5 3/16	17			1576' 2"					

SIZE OF HOLE	SIZE OF CASING	WHERE SET	NO. SACKS OF CEMENT	METHOD USED	MUD GRAVITY	AMOUNT OF MUD USED

PLUGS AND ADAPTERS

Heaving plug—Material _____ Length _____ Depth Set _____

Adapters—Material _____ Size _____

RECORD OF SHOOTING OR CHEMICAL TREATMENT

SIZE	SHELL USED	EXPLOSIVE OR CHEMICAL USED	QUANTITY	DATE	DEPTH SHOT OR TREATED	DEPTH CLEANED OUT

Results of shooting or chemical treatment _____

RECORD OF DRILL-STEM AND SPECIAL TESTS

If drill-stem or other special tests or deviation surveys were made, submit report on separate sheet and attach hereto.

TOOLS USED

Rotary tools were used from _____ feet to _____ feet, and from _____ feet to _____ feet

Cable tools were used from 0 feet to T.D. feet, and from _____ feet to _____ feet

PRODUCTION

Put to producing _____, 19__

The production of the first 24 hours was _____ barrels of fluid of which _____% was oil; _____% emulsion; _____% water; and _____% sediment. Gravity, Be _____

If gas well, cu. ft. per 24 hours 873,000 Gallons gasoline per 1,000 cu. ft. of gas _____

Rock pressure, lbs. per sq. in. 412#

EMPLOYEES

_____, Driller _____, Driller

_____, Driller _____, Driller

FORMATION RECORD ON OTHER SIDE

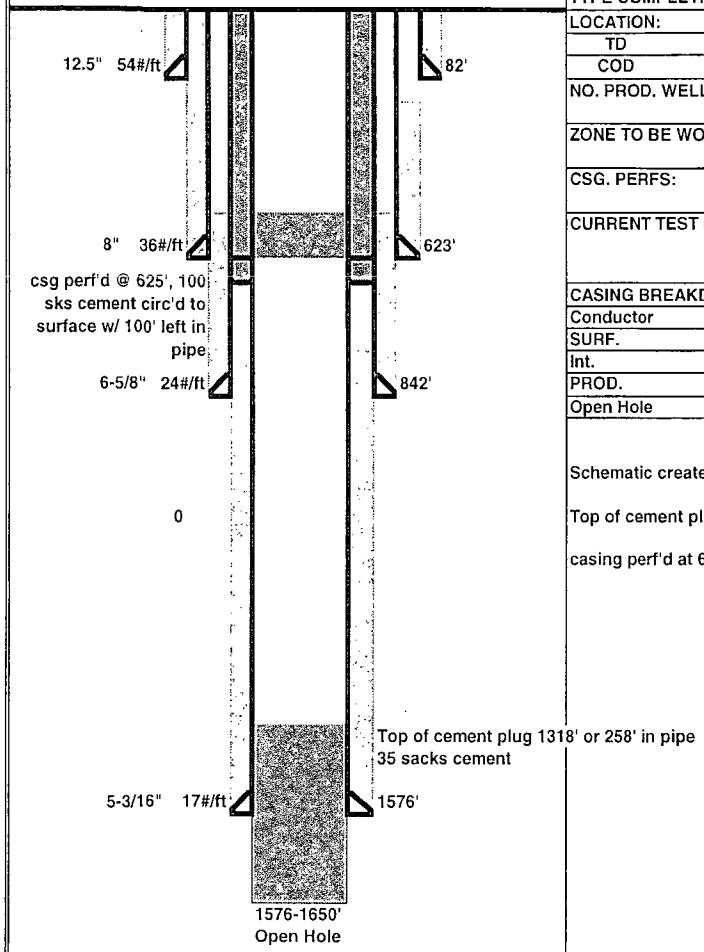
I hereby swear or affirm that the information given herewith is a complete and correct record of the well and all work done on it so far as can be determined from available records.

Subscribed and sworn to before me this _____ Solano, New Mexico (Place) 8/26/41 (Date)

Name. [illegible]

WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC



LEASE NAME	Mitchell	API # 3002120295	WELL NO. Mitchell #1
TYPE COMPLETION:	SINGLE ☐	DUAL ☐	
LOCATION:	330' FNL & 330' FWL of Section 9, T-18 R-30 Harding County, New Mexico (unit letter D)		
TD 1650'	PBD	KB	
COD	DOD	GL 4,427'	
NO. PROD. WELLS ON LEASE	FLOWING P & A'd	PUMPING	INJECTING
ZONE TO BE WORKED ON:		CURRENT COMPLETION ZONE: Glorieta	
CSG. PERFS: 1455-1485'		OPEN HOLE :	
CURRENT TEST (SHOW DATE)	GAS	OIL	
	GAS	OIL	

CASING BREAKDOWN			
Conductor	SIZE: 12.5" 54#/ft	DEPTH	82'
SURF.	SIZE: 8" 36#/ft	DEPTH	623'
Int.	SIZE: 6-5/8" 24#/ft	DEPTH	842'
PROD.	SIZE: 5-3/16" 17#/ft	DEPTH	1576'
Open Hole	SIZE:	OE DEPTH	1576-1650'

Schematic created to represent material found on NMOCD online database.

Top of cement plug 1318' or 258' in pipe (35 sacks cement)

casing perf'd at 625' and 100 sacks cement pumped and circ to surface with 100' left in pipe.

PREPARED BY:	Robert Ponville	UPDATED: 6/1/09

DISTRICT I
1625 N. French Dr., Hobbs, NM 88240
DISTRICT II
1301 W. Grand Avenue, Artesia, NM 88210
DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410
DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION

1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

Form C-102
Revised October 12, 2005

Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name

Property Code	Property Name	Well Number
	MITCHELL 1830	091F
OGRID No.	**Operator Name**	**Elevation**
	HESS CORPORATION	4362'

Surface Location

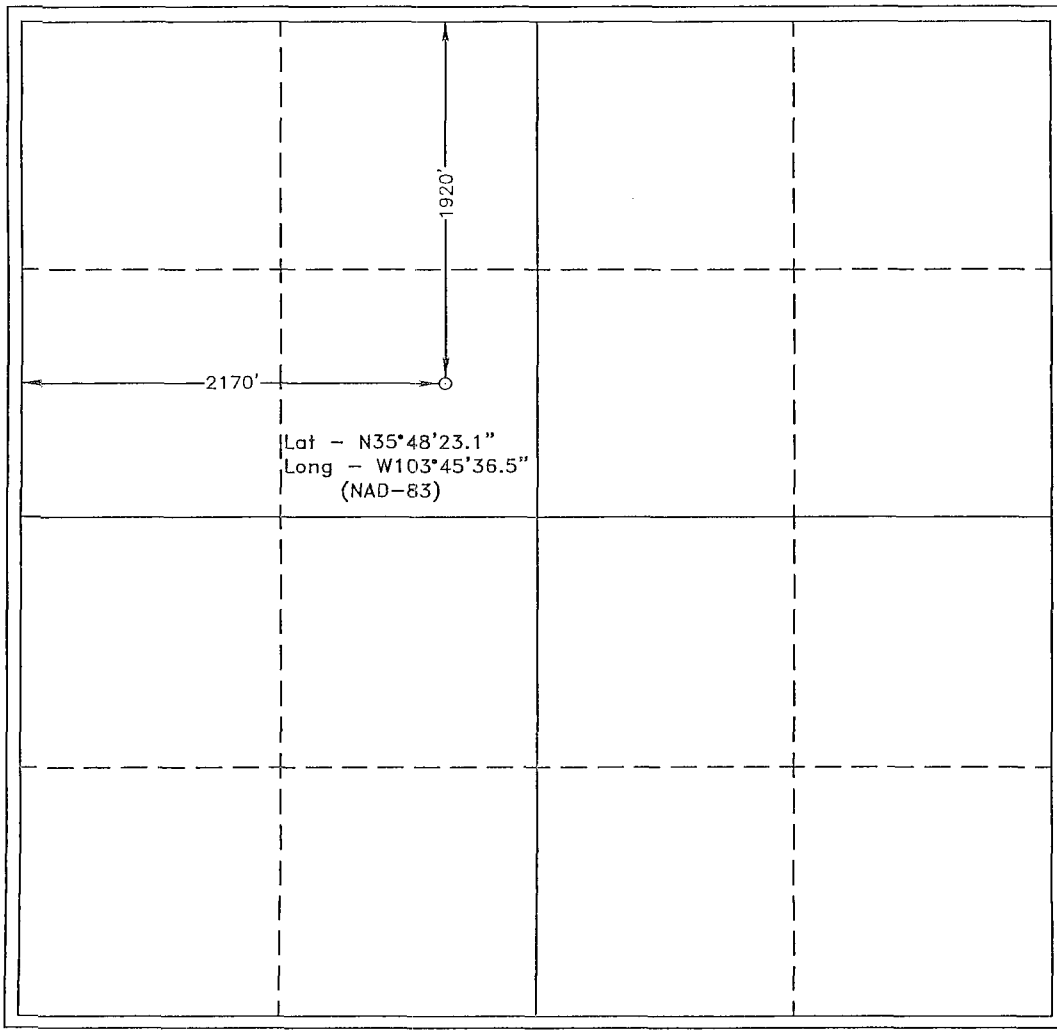
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
F	9	18 N	30 E		1920	NORTH	2170	WEST	HARDING

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Signature Date

Printed Name

SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervison, and that the same is true and correct to the best of my belief.

MAY 16, 2007
Date Surveyed

Signature & Seal of Professional Surveyor

GARY L. JONES
NEW MEXICO
7977
REGISTERED PROFESSIONAL SURVEYOR

Certificate No. Gary L. Jones 7977

BASIN SURVEYS

VII.

SWD Well Data Required

VII. Attach data on the proposed operation

1. Proposed average and maximum daily rate and volume of fluids to be disposed

See Attached Page for Rate information:
300 bbl a day was the average and
the Max would be 1,000 bbl/day

2. The system open or closed **Closed**

3. Proposed average and maximum injection pressure average and max injection pressure will be

See Attached Page for Injection information

4. Sources and an appropriate analysis of injection fluid and compatibility.

Water from Tubb **See attached water analysis**

5. Injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, a chemical analysis. See Yeso Swab Test Results

Jones, William V., EMNRD

From: Ponville, Robert [rponville@hess.com]
Sent: Monday, June 01, 2009 4:53 PM
To: Jones, William V., EMNRD
Subject: FW: Pump In Test Results from SWD
Attachments: Pump In Test 5-27.pdf

Will,

Attached below is a pdf copy of the pump in test results that are documented below. The pressure seems to break over at ~ 720 psi surface pressure.

Please let me know if you have any concerns. We plan on sending in the C-108 tomorrow and requesting the following rates and pressures.

Proposed Average and Maximum Rate
Average 300 barrels per day
Maximum 1,000 barrels per day

Proposed Average and Maximum Rate
Average 600 psig
Maximum 700 psig

<<Pump In Test 5-27.pdf>>

Thank you,

Robert Ponville

Petroleum Engineer

Hess Corporation

Off: 432.758.6728

Cell:432.209.0417

rponville@hess.com

From: Ponville, Robert
Sent: Thursday, May 28, 2009 4:28 PM
To: Jones, William V., EMNRD
Cc: 'Martin, Ed, EMNRD'; Holcomb, Danny; Stoll, Dale
Subject: Pump In Test Results from SWD

Will,

Below is a description of the second pump in test that was performed on 5/27/09 for SWD candidate Mitchell 1830-092F. Please let me know when you have time to review the results.

Pump In Test Notes

INJECTIVITY TEST ON YESO: PUMPING FRESH WATER. STARTED PUMPING .229 BPM @ 610 PSI, PRESSURE STABILIZED @ 560 PSI AFTER 7 MIN. INCREASED RATE TO 1/2 BPM @ 610 PSI, PRESSURE STABILIZED @605 PSI AFTER 9 MIN. INCREASED RATE TO 3/4 BPM @ 670 PSI, PRESSURE STABILIZED @665 PSI AFTER 7 MIN. INCREASED RATE TO 1 BPM @ 720 PSI, PRESSURE STAYED @ 720 PSI AFTER 5 MIN. INCREASED RATE TO 1 1/2 BPM @ 820 PSI, AFTER 5 MIN. PRESSURE = 805 PSI, AFTER 10 MIN.= 805 PSI, AFTER 15 MIN. = 720 PSI, AFTER 20 = 720 PSI, AFTER 25 MIN = 720 PSI. PUMPED A TOTAL OF 66 BFW INTO YESO FORMATION. SHUT DOWN PUMP, ISIP = 620 PSI, 5 MIN. = 460 PSI, 10 MIN. = 360 PSI, 15 MIN. = 305 PSI.

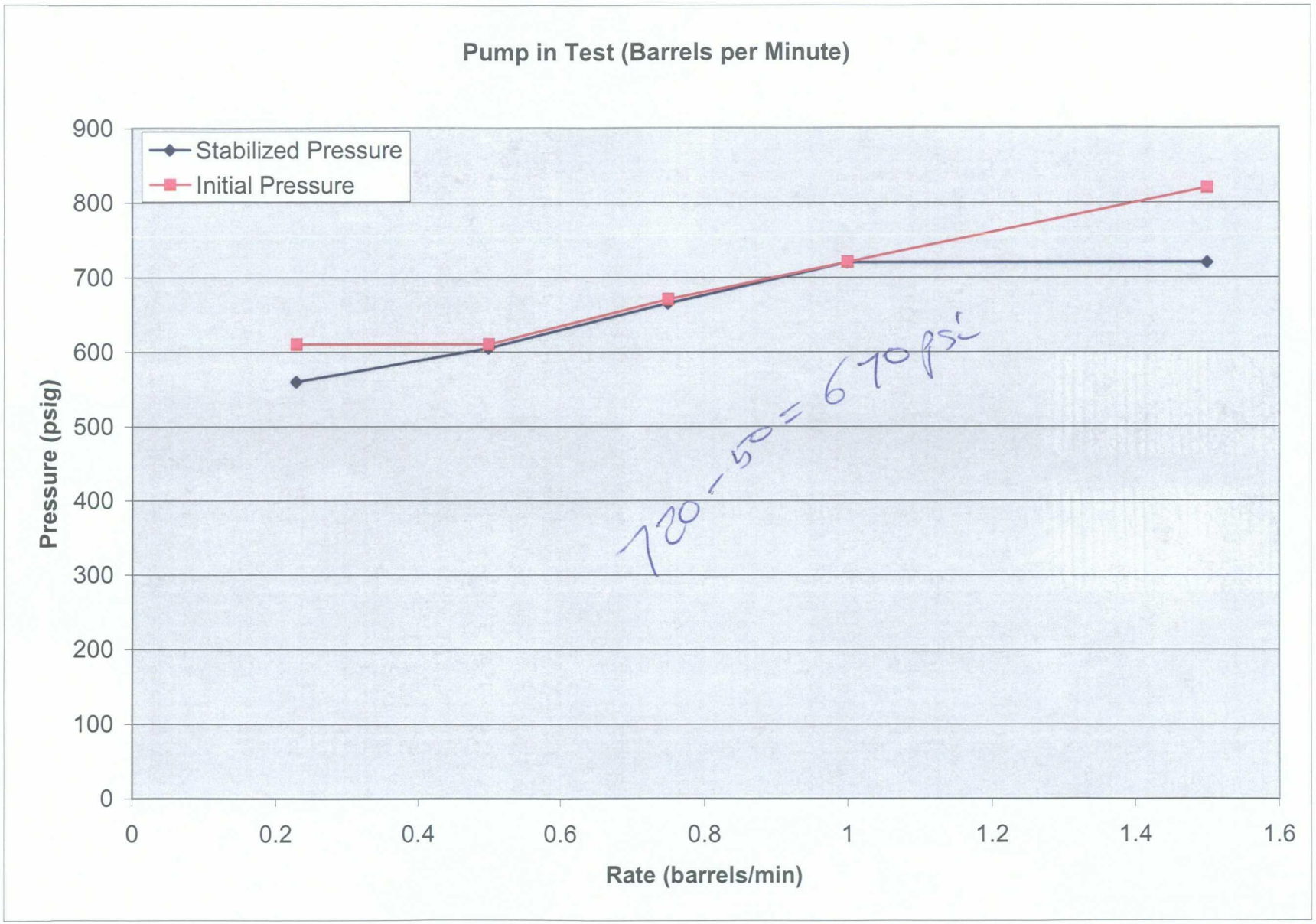
Rate		Pressure (psig)	
barrel/min	barrel/day	Initial	Stabalized
0.229	330	610	560
0.5	720	610	605
0.75	1,080	670	665
1	1,440	720	720
1.5	2,160	820	720

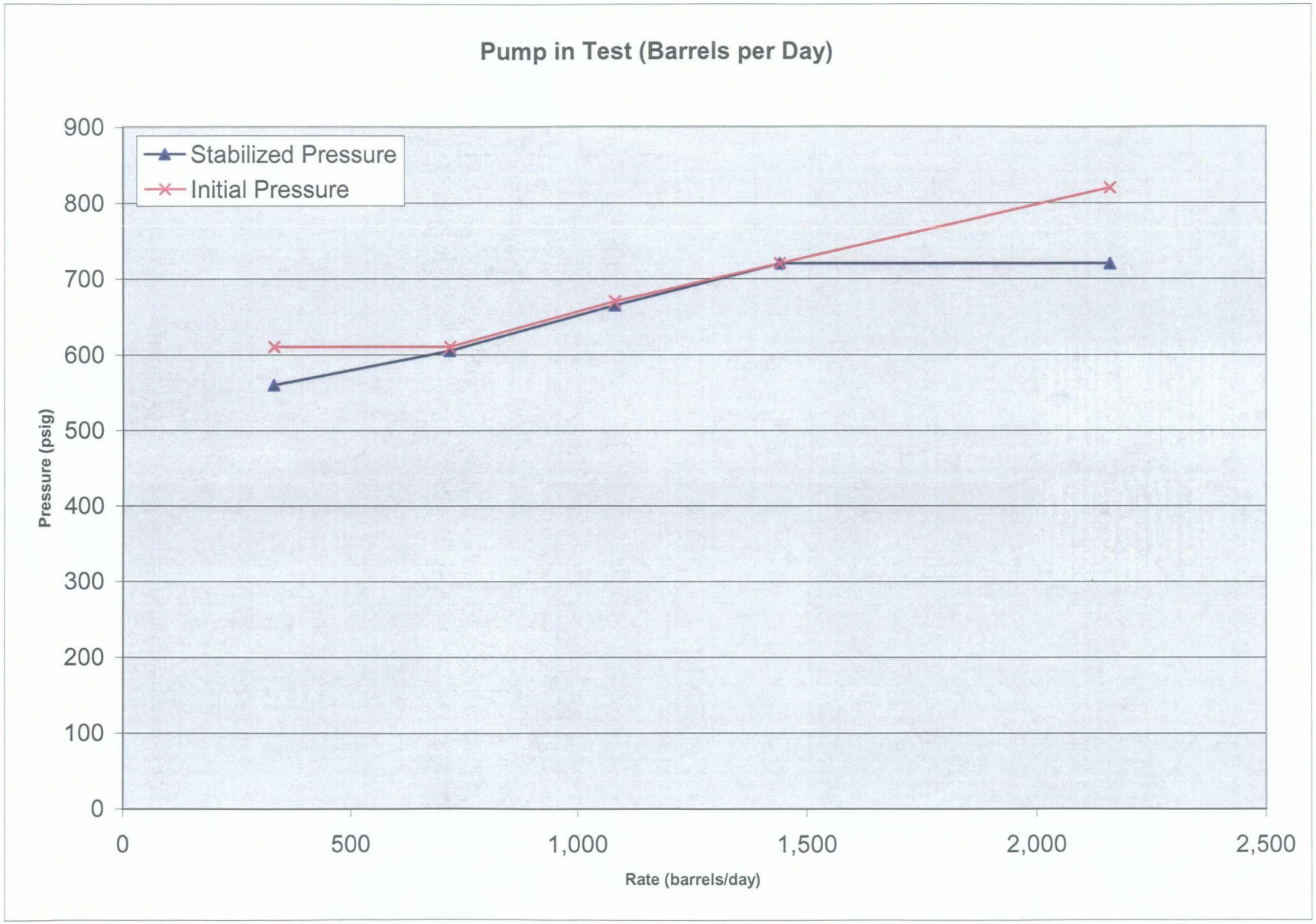
Proposed Average and Maximum Rate

Average	300	barrels per day
Maximum	1,000	barrels per day

Proposed Average and Maximum Pressure

Average	600	psig
Maximum	700	psig


Pump in Test (Barrels per Minute)
Stabilized Pressure
Initial Pressure
Pressure (psig)
900
800
700
600
500
400
300
200
100
0
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
Rate (barrels/min)
720 - 50 = 670 psi


Pump in Test (Barrels per Day)
Stabilized Pressure
Initial Pressure
Pressure (psig)
900
800
700
600
500
400
300
200
100
0
0
500
1,000
1,500
2,000
2,500
Rate (barrels/day)

WATER ANALYSIS WORK SHEET

Company: HESS Corporation	Lease type: State	Date: 12/02/2008
Well API NO. 30-021-20120	Lease Name: State DN (West Bravo Dome unit #001	
Formation: TUBB	Well Number: 1	
	Pool: West Bravo Dome CO2 Gas 96387	
Unit Letter: K Section: 16	Township: 18N Range: 30E County: Harding	

Time: _____ Water Source: WBD 1830-161K

TOTAL DISSOLVED SOLIDS:

	Column 1 mg/l as compound		Column 2 mg/l as ions		Column 3 meq/l	
CATIONS						
A. Sodium*			9,578	as Na+ = 23.0 X	416.4	A.
B. Total hardness, as CaCO3 =	8,800					
C. Calcium, as CaCO3 =	4,350	X 0.400 =	1,740	as Ca++ X 0.050 =	87.0	C.
D. Magnesium, as CaCO3 =	4,450	X 0.243 =	1,081	as Mg++ X 0.0823 =	89.0	D.
E. Barium, as BaSO4 =	-	X 0.589 =	-	as Ba++ X 0.0146 =	0.0	E.
				Subtotal	176.0	
F. Total Cations =			12,399		592.4	F.
ANIONS						
G. Chloride, as NaCl =	23,723	X 0.607 =	14,400	as Cl- X 0.0282 =	406.1	G.
H. Sulfate, as Na2SO4 =	7,988	X 0.676 =	5,400	as SO4= X 0.0208 =	112.3	H.
I. Carbonate, as CaCO3 =	-	X 0.600 =	-	as CO3= X 0.0333 =	0.0	I.
J. Bicarbonate, as CaCO3* =	3,700	X 1.220 =	4,514	as HCO3- X 0.0164=	74.0	J.
K. Total Anions =			24,314		592.4	K.
L. Total Dissolved Solids			36,713			
M. Total Iron, as Fe			-			
N. Acidity to Phen., as CaCO3	0	X 0.440 =	-	as CO2		

OTHER PROPERTIES:

P. Sulfide, as H2S	0	T. Turbidity	
Q. Oxygen, as O2		U. Temperature, F	70.0
R. pH	6.69	V. Specific Gravity	1.025
S. Conductivity (mS/cm)	40,500	W. Resistivity (10,000 / Conduct.)	0.25
X. TDS (g/L)			

Comments: Sample was cloudy. It filtered clear.

*Sodium calculated by meq/l difference, not analyzed

*Bicarbonate calculated from "M" alkalinity

District / Area: _____ Analyst: H. Norton

Directions: Test results entered in these cells

Step 1: Complete tests in Column 1 and "Other Properties."

Step 2: Complete the multiplication steps for Columns 2 & 3, except A

Step 3: In Column 3, add C, D, E to get subtotal. In Column 3, add G, H, I &J and enter total in 3K.

Step 4: Subtract subtotal from 3K and enter difference in 3A. In Column 3, add 3A to subtotal and enter in 3F.

Step 5: Multiply 3A by 23.0 and enter in 2A

Step 6: Add Column 2 Cations to get Total in 2F. Add Anions to get Total in 2K. Add 2F and 2K to get 2L.

Yeso Swab Test Results

On 5/21/09 well Mitchell 1830-092F was drilled out to 1700' with fresh water and a packer was run and set below the Glorietta perforations with tailpipe to ~25' off bottom.

On 5/22/09 the well was swabbed back and samples were taken. After the calculated tubing volume and annulus volume (below packer) were swabbed back the well went dry and no more fluid was recovered. The packer was unset and re-set with the tubing within 1 foot of bottom. The well was again swabbed dry after recovering the tubing and annulus volumes. The well was left open to atmosphere for 1 hour between swab runs with all the swab attempts coming back dry. The well was then shut-in over night.

Dry interval

On 5/23/09 the crew arrived on location to find ~ 80psi of gas pressure on the well and bled it off. The first swab run returned less than 1 barrel of water and all subsequent runs were dry. At this point the crew pulled the tubing and packer from the hole and re-ran the packer with out tail pipe to perform a pump in test.

All samples were field tested for chloride levels and the samples obtained on 5/22/09 were tested for TDS levels by Cardinal Laboratories in Hobbs, NM. All field chloride tests were done by titration with mercuric nitrate and titrated after one drop indicating that the chlorides were less than 1,000 mg/L. Cardinal's TDS tests are attached and show the same results of less than 1,300 mg/L of total dissolved solids. These tests along with swabbing the well dry, waiting and swabbing again seem to show that the Yeso formation will not deliver any formation water and that all fluids recovered were the fresh water that was used for drilling and well control.

As reference points the fluid recovered from the Glorietta formation during swabbing attempts in January were determined to be ~ 6,000 mg/L of total dissolved solids and produced water from the underlying Tubb formation have TDS levels ranging from 23,000 mg/L to 64,000 mg/L.

CARDINAL LABORATORIES

PHONE (575) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
HESS CORPORATION
ATTN: ROBERET PONVILLE
P.O. BOX 840
SEMINOLE, TX 79360
FAX TO: (432) 758-6768

Receiving Date: 05/22/09
Reporting Date: 05/26/09
Project Number: NOT GIVEN
Project Name: SWD YESO TEST
Project Location: WEST BRAVO DOME

Sampling Date: 05/22/09
Sample Type: WASTEWATER
Sample Condition: COOL & INTACT @ 2.5°C
Sample Received By: 05/22/09
Analyzed By: HM

LAB NUMBER	SAMPLE ID	TDS (mg/L)
Analysis Date:		05/23/09
H17485-1	1	675
H17485-2	2	1,130
H17485-3	4	1,280
H17485-4	5	1,050
Quality Control		NR
True Value QC		NR
% Recovery		NR
Relative Percent Difference		0.3

METHOD: EPA 600/4-79-020	160.1

Chemist

05/26/09
Date

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above-stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

H17485 HESS

CARDINAL LABORATORIES
101 East Marland, Hobbs, NM 88240
(575) 393-2326 Fax (575) 393-2476

Page_____ of _____

Company Name:	Hess Corporation
Project Manager:	Robert Ponville
Address:	100 NW 7th Street / PO Box 245
City: Seminole	State: TX Zip: 79360
Phone #: 432-758-6722	Fax #: 432-758-6768
Project #: Mitchell [illegible]	Project Owner: Robert Ponville
Project Name: SWD Yesa Test	
Project Location: Lea County, NM	
Sampler Name: Robert Ponville	

BILL TO

P.O. #:	
Company:	
Attn:	
Address:	
City:	
State:	Zip:
Phone #:	
Fax #:	

ANALYSIS REQUEST

FOR LAB USE ONLY Lab I.D. H11485	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	PRESERV.: ACID/BASE:	ICE / COOL	OTHER:	SAMPLING DATE	TIME	TDS
1	1				✓						✓		5/2/07		✓
2	2				✓						✓				✓
3	4				✓						✓				✓
4	5				✓						✓				✓

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Sampler Relinquished:	Date: / Time:	Received By:	
Relinquished By: Robert Ponville	Date: 5/2/07 Time: 9:45	Received By: Celina Keene	
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	Temp. 2.5°C	Sample Condition Cool: ☒ Yes ☐ No Intact: ☒ Yes ☐ No	CHECKED BY: (Initials)

Phone Result: ☐ No Add'l Phone #:
Fax Result: ☐ No Add'l Fax #:
REMARKS: Rush
email: rponville@hess.com

† Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2476.

VIII.

- **INJECTION ZONE: Yeso**
  - GEOLOGICAL NAME: Yeso Formation (Clearfork Group)
  - DEPTH: 1500'ftMD
  - THICKNESS: 400'ftMD
  - LITHOLOGICAL DETAIL: very fine to medium-grain quartzose sandstone with arkosic characteristic interfingering with very fine shales. Estimated formation properties are an average 8% porosity
  - SOURCE OF FRESH WATER: No

    See attached pages for Yeso Swab Test Results and Analytical results

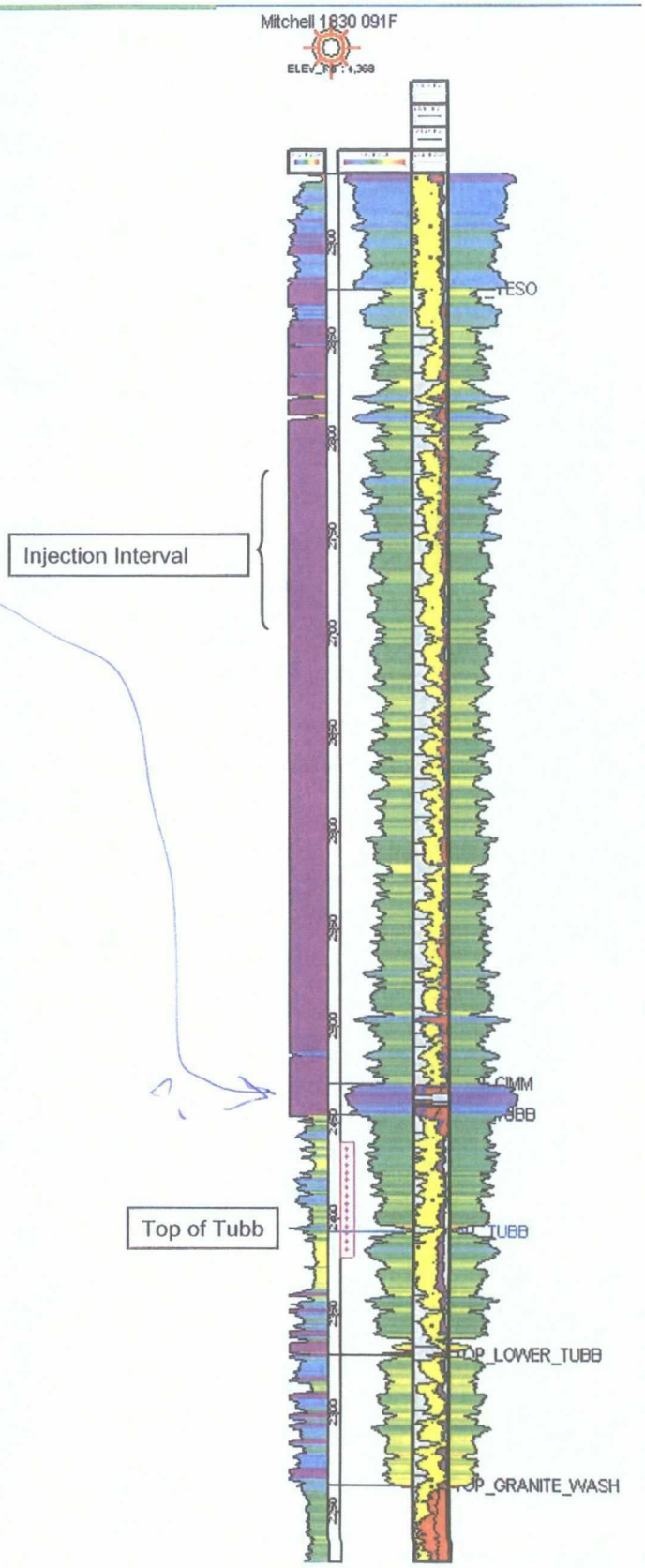
- **OVERLYING ZONE: Glorieta**
  - GEOLOGICAL NAME: Glorieta Sandstone
  - DEPTH: 1410' ftMD
  - THICKNESS: 90'ftMD
  - LITHOLOGICAL DETAIL: white, fine to medium-grain quartzose sandstone of probable shallow marine environment. Estimated formation properties are an average 13% porosity
  - SOURCE OF FRESH WATER: No (No wells in the surrounding area are using the Glorieta as a fresh water source)
  - Note: previous test on the Glorieta by Hess could not get a TDS <10K mg/l)

- **UNDERLYING ZONE: Cimarron**
  - GEOLOGICAL NAME: Cimarron Formation
  - DEPTH: 1900'ftMD
  - THICKNESS: 15' ftMD
  - LITHOLOGICAL DETAIL: tight Anhydrate with some limestone and dolomite occurrence. Porosity very low (less than 1%).
  - SOURCE OF FRESH WATER: No

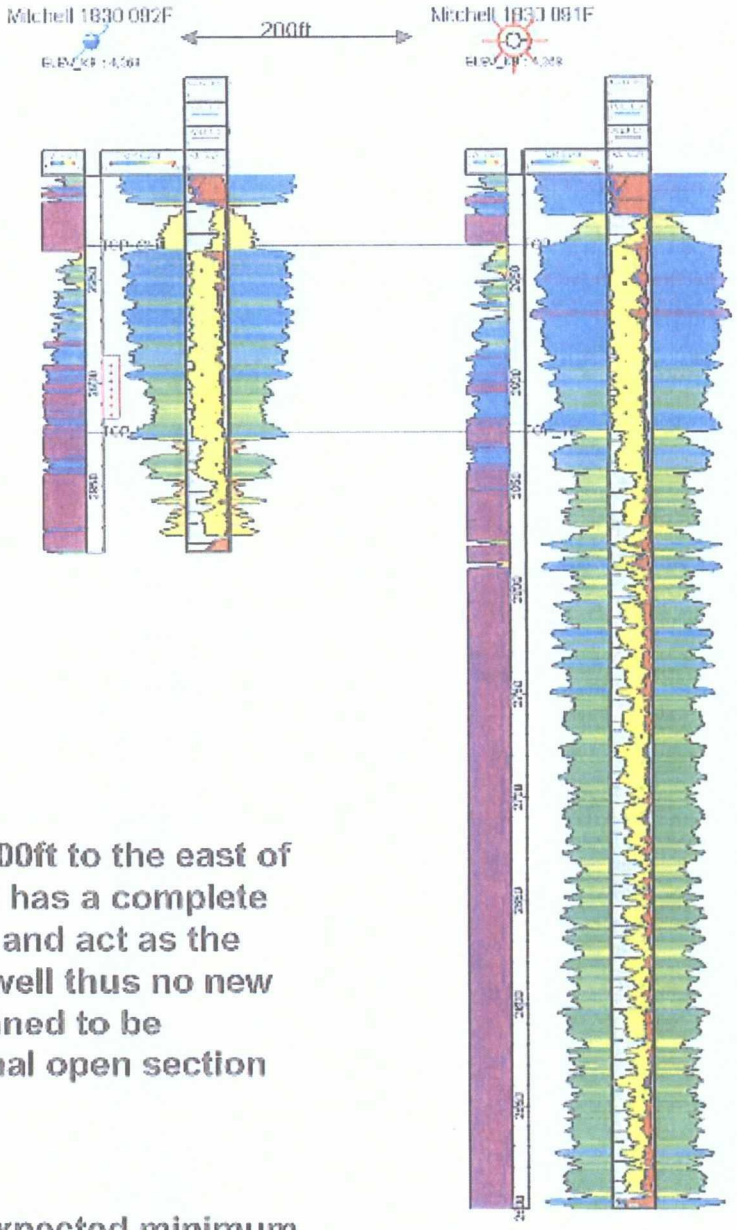
Yeso and Tubb Communication

- **Based on the neighboring well Mitchell 1830 091F (100ft to east of the SWD well) which was drilled until the Precambrian Granite, there is basically no communication between the injection formation (Yeso) and the CO2 producing formation (Tubb) due the existence of an impermeable formation the Cimarron Anhydrate**

- **The Top of the Tubb Formation in the SWD well is predicted to be at around 1915 ftMD, while the injection interval will be somewhere between 1590 ftMD to 1800 ftMD**



Open hole log data availability

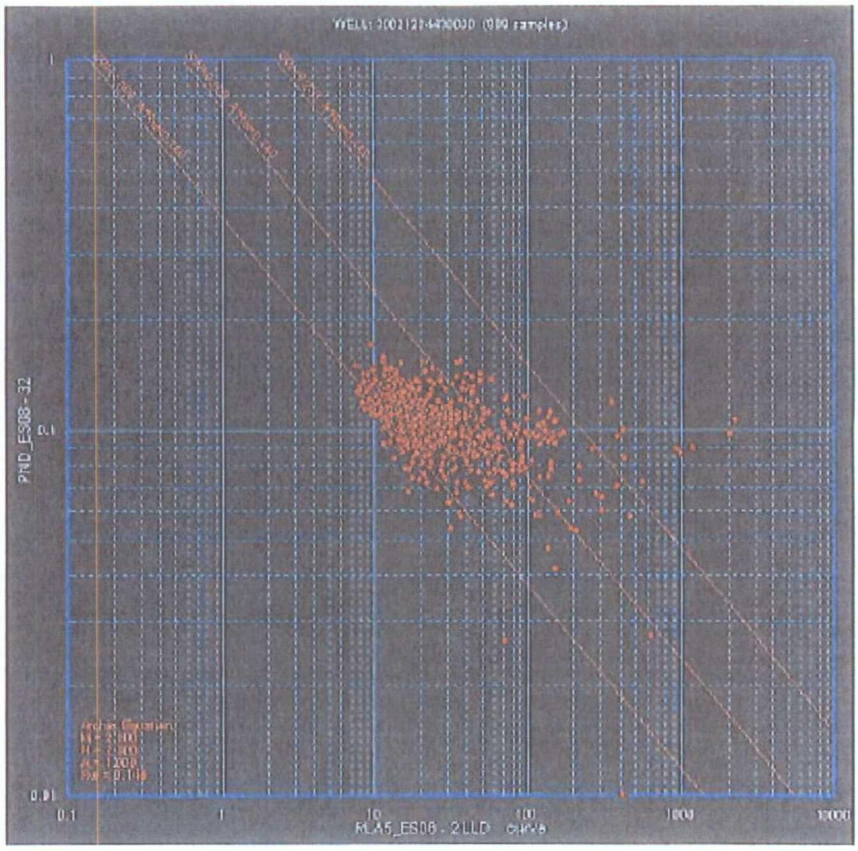


- The 1830 091F well is 200ft to the east of the SWD well. This well has a complete suites of open hole log and act as the pilot hole for the SWD well thus no new open hole logs are planned to be acquired in the additional open section of the SWD well

- Lithology variation is expected minimum which basically mean that the same type of lithology are expected between the 1830 091F and the SWD well

Inferred Water Resistivity

- Based on the resistivity logs from the adjacent well (the 1830 091F) it is expected that the Water resistivity on the SWD well will be within in the range between 0.14ohmm to 0.18ohmm
- This will normally translate into a chloride content of 23,000 mg/l to 27,000 mg/l



IX.

IX. Describe the proposed stimulation program, if any.

None Planned at this time

X.

X. Attach appropriate logging and test data on the well.

Log submitted previously
Well data attached

Schlumberger

Company: Hess Corporation

Well: Mitchell 1830-092F

Field: West Bravo Dome

County: Harding State: NM

PLATFORM EXPRESS
Triple Detector Litho-Density
Compensated Neutron / Gamma Ray

County:	Harding
Field:	West Bravo Dome
Location:	1920' FNL & 1970 FWL
Well:	Mitchell 1830-092F
Company:	Hess Corporation

LOCATION

1920' FNL & 1970 FWL
S-9, T-18N, R-30E

Elev.:	K.B.	4373.00 ft
	G.L.	4362.00 ft
	D.F.	4372.00 ft

Permanent Datum:	GROUND LEVEL	Elev.:	4362.00 ft
Log Measured From:	KELLY BUSHING	11.00 ft	above Perm. Datum
Drilling Measured From:	KELLY BUSHING		

API Serial No.	Section:	Township:	Range:
30-021-20494	9	18N	30E

Logging Date			12-Oct-2008					
Run Number			1					
Depth Driller			1580 ft					
Schlumberger Depth			1592 ft					
Bottom Log Interval			1590 ft					
Top Log Interval			200 ft					
Casing Driller Size @ Depth			8.625 in	@	1121 ft		@	
Casing Schlumberger			1121 ft					
Bit Size			7.875 in					
Type Fluid In Hole			Fresh Water					
MUD	Density	Viscosity	8.8 lbm/gal	47 s				
MUD	Fluid Loss	PH	5 cm3	12				
MUD	Source Of Sample		Circulation Pit					
RM @ Measured Temperature			1.562 ohm.m	@	70 degF		@	
RMF @ Measured Temperature			1.562 ohm.m	@	70 degF		@	
RMC @ Measured Temperature				@			@	
Source RMF	RMC							
RM @ MRT	RMF @ MRT		1.312 @ 85	1.312	@ 85	@		@
Maximum Recorded Temperatures			85 degF					
Circulation Stopped		Time	12-Oct-2008					
Logger On Bottom		Time	12-Oct-2008		19:00			
Unit Number	Location		3125	Hobbs, NM				
Recorded By			Ryan Bedford					
Witnessed By			Dennis Crawford					

	Run 1	Run 2	Run 3	Run 4

DEPTH SUMMARY LISTING

Date Created: 12-OCT-2008 20:47:46

Depth System Equipment

Depth Measuring Device		Tension Device		Logging Cable	
Type:	IDW-B	Type:	CMTD-B/A	Type:	7-39P LXS
Serial Number:	4065	Serial Number:	1740	Serial Number:	708099
Calibration Date:	12-May-2008	Calibration Date:	18-Sep-2008	Length:	18140 FT
Calibrator Serial Number:	1	Calibrator Serial Number:	1017	Conveyance Method:	Wireline
Calibration Cable Type:	7-39P	Number of Calibration Points:	0	Rig Type:	LAND
Wheel Correction 1:	-4				
Wheel Correction 2:	-2				

Depth Control Parameters

Log Sequence:	First Log In the Well
Rig Up Length At Surface:	207.50 FT
Rig Up Length At Bottom:	207.20 FT
Rig Up Length Correction:	0.30 FT
Stretch Correction:	0.00 FT
Tool Zero Check At Surface:	0.30 FT

Depth Control Remarks

1. All SLB depth control policies followed
2. IDW used as primary depth control
3. Z-Chart used as secondary depth control
4.
5.
6.

DISCLAIMER
THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED-DATA; (b) DISCLAIMERS AND WAIVERS OF WARRANTIES AND REPRESENTATIONS REGARDING COMPANY'S USE OF AND RELIANCE UPON THE RECORDED-DATA; AND (c) CUSTOMER'S FULL AND SOLE RESPONSIBILITY FOR ANY INFERENCE DRAWN OR DECISION MADE IN CONNECTION WITH THE USE OF THIS RECORDED-DATA.

OTHER SERVICES1	OTHER SERVICES2
OS1: PEX-HRLA	OS1:
OS2:	OS2:
OS3:	OS3:
OS4:	OS4:
OS5:	OS5:

REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
All time stamps are mountain standard time.	
Tool string run as per tool sketch.	
All logs run on an assumed Limestone matrix with MDEN = 2.71 g/cc.	
1.5" standoffs used to centralize the HRLA.	
Cement volume calculated using a 5.5" FCD.	
Rig: Capstar 217	
Crew: Ryan, Rod, Jeremy, Chris	

RUN 1		RUN 2	
SERVICE ORDER #:	ASR0-00032	SERVICE ORDER #:	
PROGRAM VERSION:	16C0-147	PROGRAM VERSION:	
FLUID LEVEL:	0 ft	FLUID LEVEL:	

LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

EQUIPMENT DESCRIPTION

RUN 1	RUN 2
SURFACE EQUIPMENT	
GSR-U/Y WITM (DTS)-A	
NCT-B	

Schlumberger

Company: Hess Corporation
Well: Mitchell 1830-092F
Field: West Bravo Dome
County: Harding State: NM

County: Harding
Field: West Bravo Dome
Location: 1920' FNL & 1970 FWL
Well: Mitchell 1830-092F
Company: Hess Corporation

PLATFORM EXPRESS
Triple Detector Litho-Density
Compensated Neutron / Gamma Ray

LOCATION

1920' FNL & 1970 FWL
S-9, T-18N, R-30E

Elev.: K.B. 4373.00 ft
G.L. 4362.00 ft
D.F. 4372.00 ft

Permanent Datum: GROUND LEVEL Elev.: 4362.00 ft
Log Measured From: KELLY BUSHING 11.00 ft above Perm. Datum
Drilling Measured From: KELLY BUSHING

API Serial No.	Section:	Township:	Range:
30-021-20494	9	18N	30E

Logging Date		12-Oct-2008							
Run Number		1							
Depth Driller		1580 ft							
Schlumberger Depth		1592 ft							
Bottom Log Interval		1590 ft							
Top Log Interval		200 ft							
Casing Driller Size @ Depth		8.625 in	@	1121 ft		@			
Casing Schlumberger		1121 ft							
Bit Size		7.875 in							
Type Fluid In Hole		Fresh Water							
MUD Density	Viscosity	8.8 lbm/gal	47 s						
MUD Fluid Loss	PH	5 cm3	12						
Source Of Sample		Circulation Pit							
RM @ Measured Temperature		1.562 ohm.m	@	70 degF		@			
RMF @ Measured Temperature		1.562 ohm.m	@	70 degF		@			
RMC @ Measured Temperature			@			@			
Source RMF	RMC								
RM @ MRT	RMF @ MRT	1.312 @ 85	1.312 @ 85		@		@		
Maximum Recorded Temperatures		85 degF							
Circulation Stopped	Time	12-Oct-2008							
Logger On Bottom	Time	12-Oct-2008		19:00					
Unit Number	Location	3125	Hobbs, NM						
Recorded By		Ryan Bedford							
Witnessed By		Dennis Crawford							

Logging Date									
Run Number									
Depth Driller									
Schlumberger Depth									
Bottom Log Interval									
Top Log Interval									
Casing Driller Size @ Depth				@				@	
Casing Schlumberger									
Bit Size									
Type Fluid In Hole									
MUD Density	Viscosity								
MUD Fluid Loss	PH								
Source Of Sample									
RM @ Measured Temperature				@				@	
RMF @ Measured Temperature				@				@	
RMC @ Measured Temperature				@				@	
Source RMF	RMC								
RM @ MRT	RMF @ MRT	@		@		@		@	
Maximum Recorded Temperatures									
Circulation Stopped	Time								
Logger On Bottom	Time								
Unit Number	Location								
Recorded By									
Witnessed By									

DEPTH SUMMARY LISTING

Date Created: 12-OCT-2008 20:47:46

Depth System Equipment

Depth Measuring Device	Tension Device	Logging Cable
Type: IDW-B	Type: CMTD-B/A	Type: 7-39P LXS

DEPTH SUMMARY LISTING

Date Created: 12-OCT-2008 20:47:46

Depth System Equipment

Depth Measuring Device		Tension Device		Logging Cable	
Type:	IDW-B	Type:	CMTD-B/A	Type:	7-39P LXS
Serial Number:	4065	Serial Number:	1740	Serial Number:	708099
Calibration Date:	12-May-2008	Calibration Date:	18-Sep-2008	Length:	18140 FT
Calibrator Serial Number:	1	Calibrator Serial Number:	1017	Conveyance Method:	Wireline
Calibration Cable Type:	7-39P	Number of Calibration Points:	0	Rig Type:	LAND
Wheel Correction 1:	-4				
Wheel Correction 2:	-2				

Depth Control Parameters

Log Sequence:	First Log In the Well
Rig Up Length At Surface:	207.50 FT
Rig Up Length At Bottom:	207.20 FT
Rig Up Length Correction:	0.30 FT
Stretch Correction:	0.00 FT
Tool Zero Check At Surface:	0.30 FT

Depth Control Remarks

1. All SLB depth control policies followed
2. IDW used as primary depth control
3. Z-Chart used as secondary depth control
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5.
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OTHER SERVICES1	OTHER SERVICES2
OS1: PEX-HRLA	OS1:
OS2:	OS2:
OS3:	OS3:
OS4:	OS4:
OS5:	OS5:
REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
All time stamps are mountain standard time.	
Tool string run as per tool sketch.	
All logs run on an assumed Limestone matrix with MDEN = 2.71 g/cc.	
1.5" standoffs used to centralize the HRLA.	
Cement volume calculated using a 5.5" FCD.	
Rig: Capstar 217	
Crew: Ryan, Rod, Jeremy, Chris	

RUN 1			RUN 2		
SERVICE ORDER #:	ASR0-00032		SERVICE ORDER #:		
PROGRAM VERSION:	16C0-147		PROGRAM VERSION:		
FLUID LEVEL:	0 ft		FLUID LEVEL:		
LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

EQUIPMENT DESCRIPTION

RUN 1	RUN 2
SURFACE EQUIPMENT	
GSR-U/Y WITM (DTS)-A	
NCT-B	
CNB-AB	
NCS-VB	
DOWNHOLE EQUIPMENT	

EQUIPMENT DESCRIPTION

RUN 1 | RUN 2

SURFACE EQUIPMENT

GSR-U/Y
NCT-B
CNB-AB
NCS-VB

WITM (DTS)-A

DOWNHOLE EQUIPMENT

LEH-Q LEH-Q			56.9
AH-369 AH-369			54.7
DTC-H ECH-KC DTCH0-A DTCH1-A	CTEM TelStatus ToolStatu HGNS HTEM HMCA	52.4 50.3 50.3	53.3
HILTH-FTB HGNSD-H HMCA-H HGNH NLS-KL NSR-F 2184 HACCZ-H 4648 HCNT-H HGR AH-107 AH-107 HRLT-B DUMMY-A AH-270 HRCC-H HRMS-H HRGD-H GLS-VJ 5255 MCFL Device-H HILT Nucl. LS-H 28800 HILT Nucl. SS-H 27878 HILT Nucl. BS-H 42767 BOW-SPR NPV-N	HGNS Gamm HGNS Neut HGNS Neut HGNS sens	49.6 43.7 43.2 40.9	50.3
		1.5 IN Standoff 1.5 IN Standoff	
	High Res.	25.1	
		1.5 IN Standoff 1.5 IN Standoff	
	HRCC cart	8.7	
	MCFL HILT cali HRDD-LS HRDD-SS HRDD-BS DF HTEN HMAS HV Accelerom Tension	3.3 2.8 2.4	
BNS-CCS		0.0 TOOL ZERO	0.5

MAXIMUM STRING DIAMETER 6.63 IN
MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LENGTHS IN FEET

PIP SUMMARY

Integrated Borehole Volume Every 10 F3
Integrated Borehole Volume Every 100 F3
Integrated Annulus Volume Every 10 F3
Integrated Annulus Volume Every 100 F3

Time Mark Every 60 S

Cable Tension (TENS)
10000 (LBF) 0

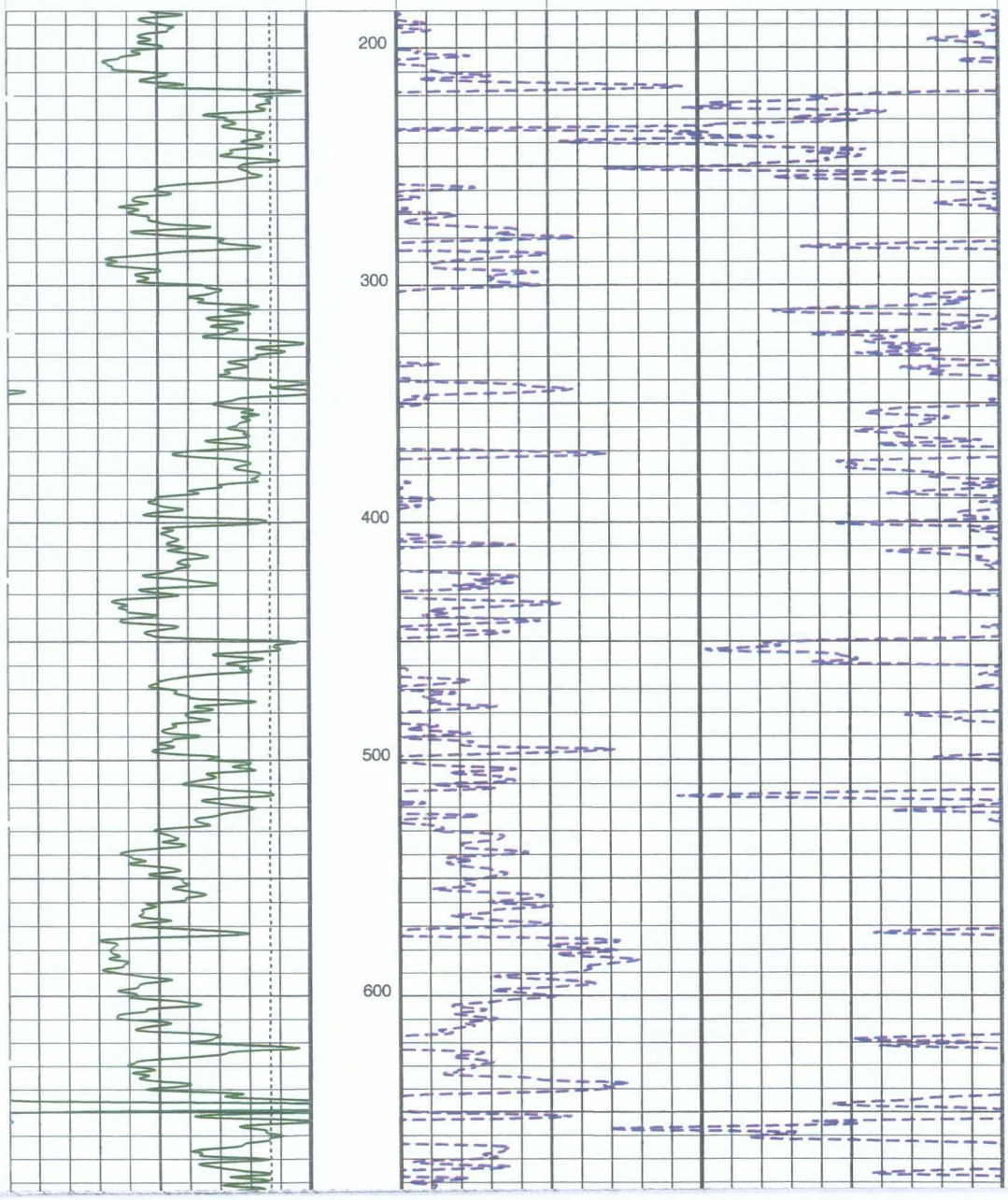
HRMS Caliper (HCAL)
6 (IN) 16

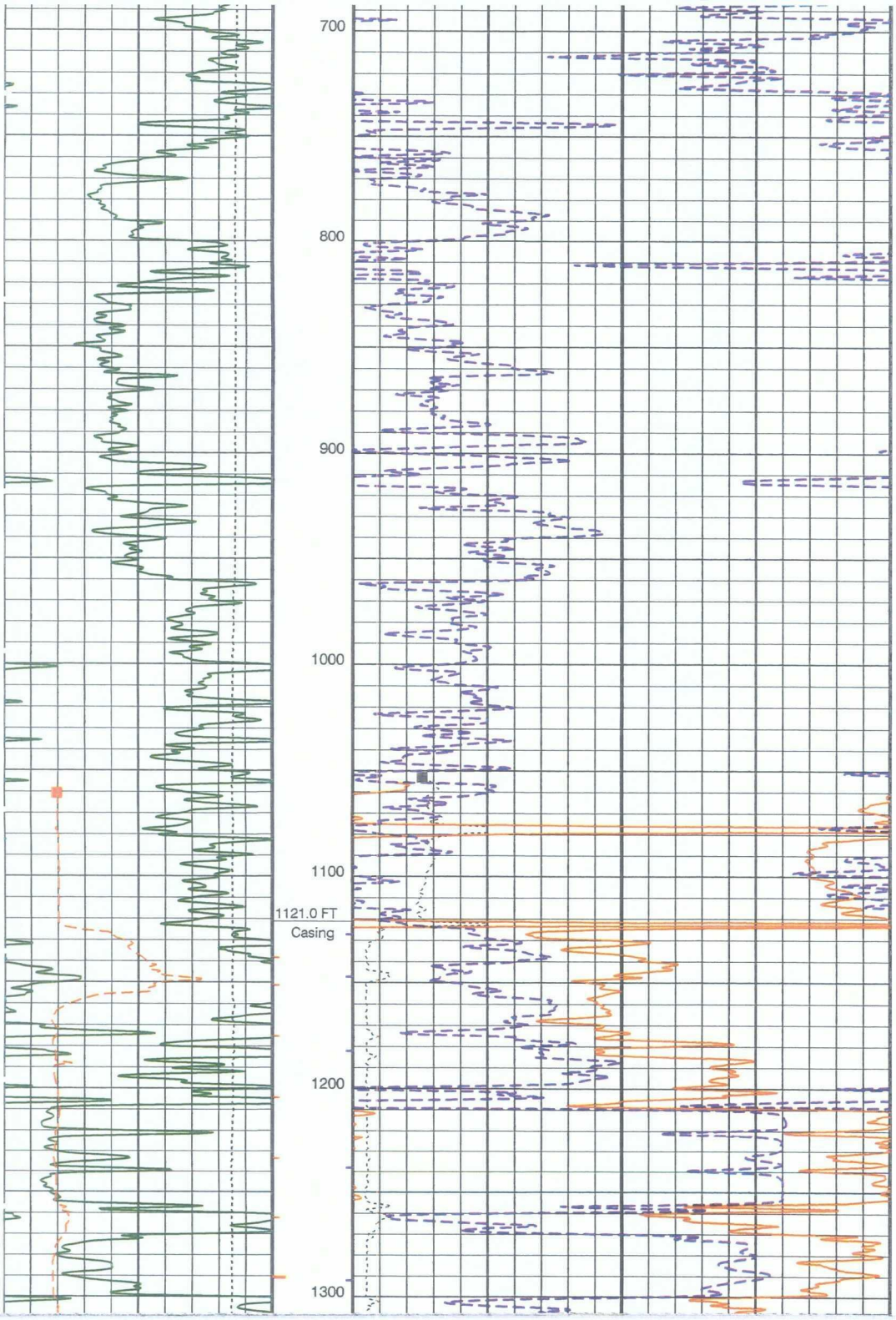
Gamma Ray (GR)
0 (GAPI) 100

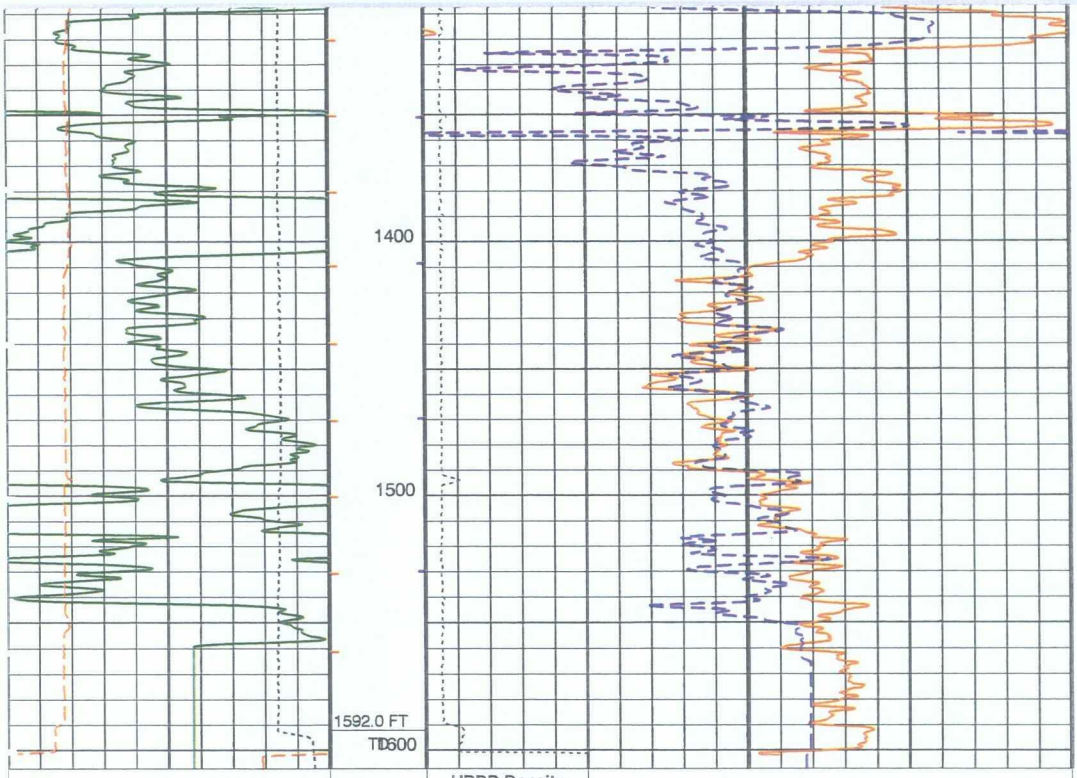
BHcorr Thermal Neutron Porosity [LIME] (TNPH)
0.3 (V/V) -0.1

Stan Res Formation Density (RHOZ)
2 (G/C3) 3

HRDD Density Correction (HDRA)
-0.1 (G/C3) 0.9




700
800
900
1000
1100
1121.0 FT
Casing
1200
1300



Gamma Ray (GR) 0 (GAPI) 100		HRDD Density Correction (HDRA) -0.1 (G/C3) 0.9
HRMS Caliper (HCAL) 6 (IN) 16		Stan Res Formation Density (RHOZ) 2 (G/C3) 3
Cable Tension (TENS) 10000 (LBF) 0		BHcorr Thermal Neutron Porosity [LIME] (TNPH) 0.3 (V/V) -0.1

PIP SUMMARY

- Integrated Borehole Volume Every 10 F3
- Integrated Borehole Volume Every 100 F3
- Integrated Annulus Volume Every 10 F3
- Integrated Annulus Volume Every 100 F3

Time Mark Every 60 S

Format: 2_nuc Vertical Scale: 2" per 100' Graphics File Created: 12-Oct-2008 19:55

OP System Version: 16C0-147

MCM

HILTH-FTB SRPC-3624-Q2_2008_OP16 DTC-H 16C0-147

Output DLIS Files

DEFAULT TLD_MCFL_CNL_012LUP FN:10 PRODUCER 12-Oct-2008 19:55

Schlumberger

Main Pass 5"=100'

MAXIS Field Log

Output DLIS Files

FAULT TLD_MCFL_CNL_012LUP FN:10 PRODUCER 12-Oct-2008 19:55

OP System Version: 16C0-147

MCM

TH-FTB SRPC-3624-Q2_2008_OP16 DTC-H 16C0-147

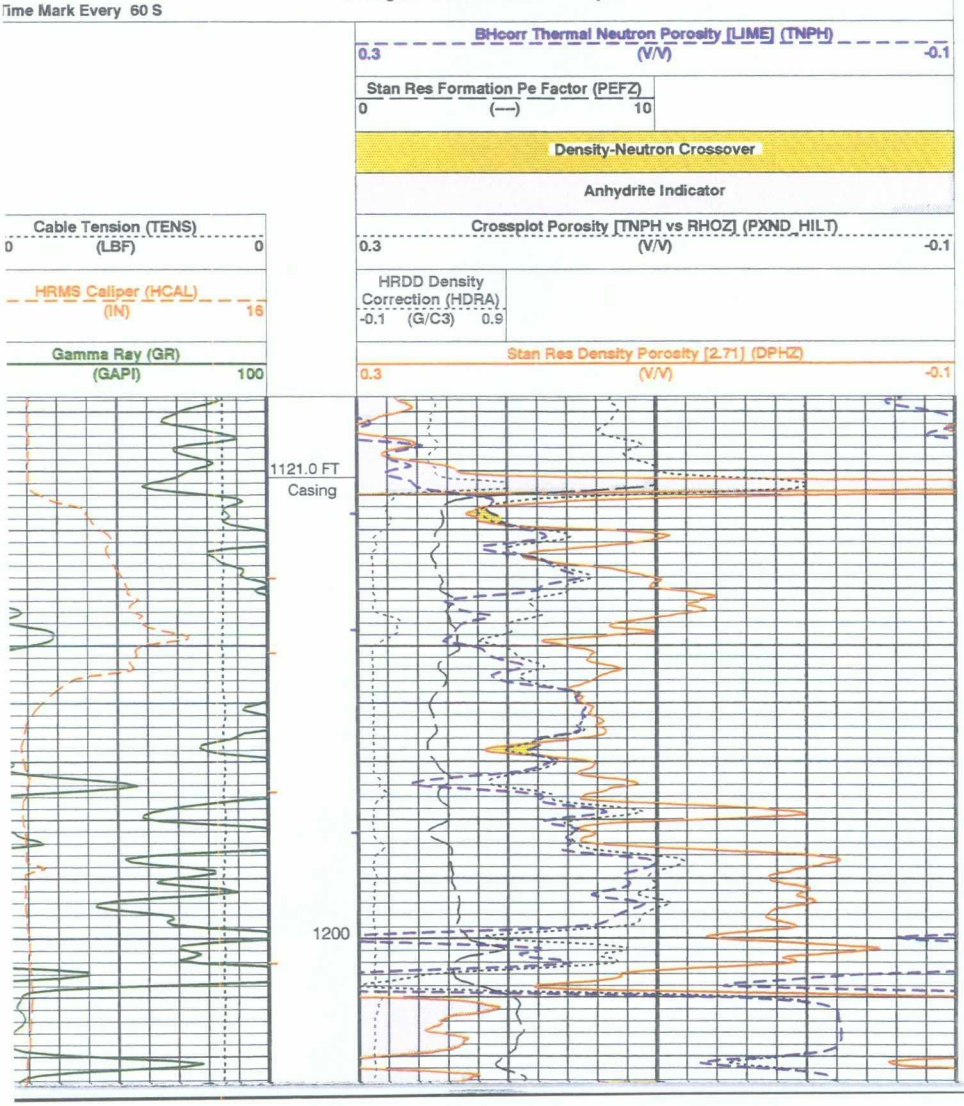
Changed Parameter Summary

DLIS Name	New Value	Previous Value	Depth & Time
DL	1592.00 FT	1592.00 FT	1534.8 19:56:41
	1592.00 FT	1592.00 FT	1541.9 19:56:45

PIP SUMMARY

- Integrated Borehole Volume Every 10 F3
- Integrated Borehole Volume Every 100 F3
- Integrated Annulus Volume Every 10 F3
- Integrated Annulus Volume Every 100 F3

Time Mark Every 60 S



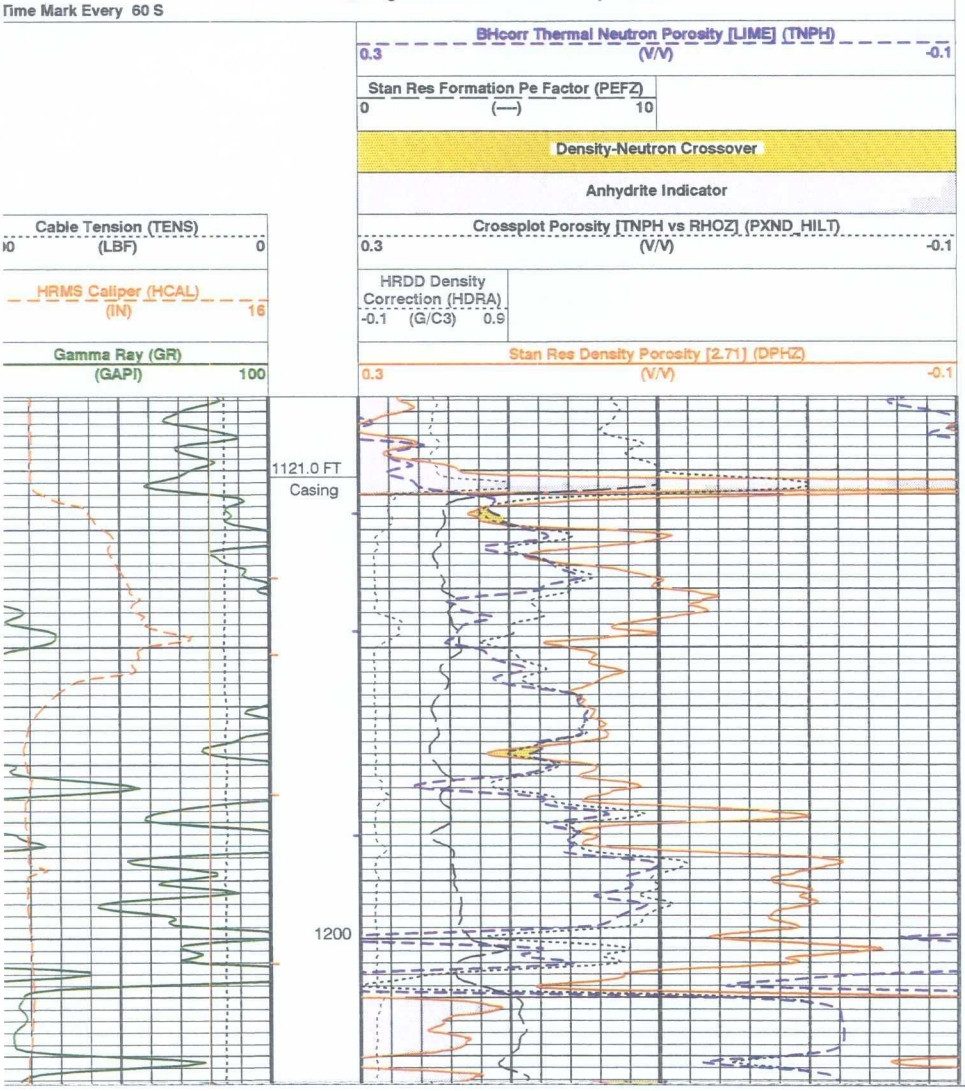
Changed Parameter Summary

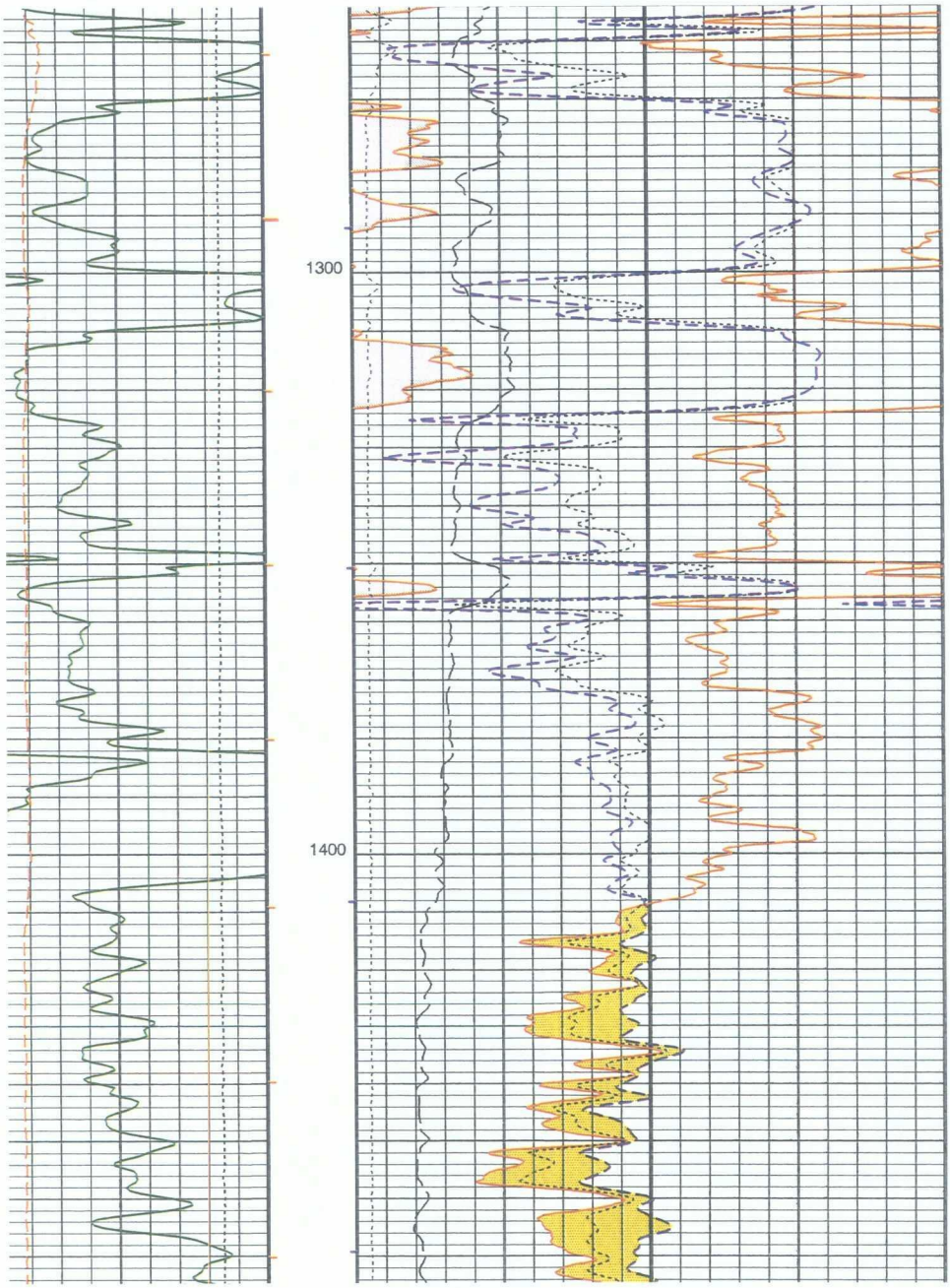
DLIS Name	New Value	Previous Value	Depth & Time
DL	1592.00 FT	1592.00 FT	1534.8 19:56:41
	1592.00 FT	1592.00 FT	1541.9 19:56:45

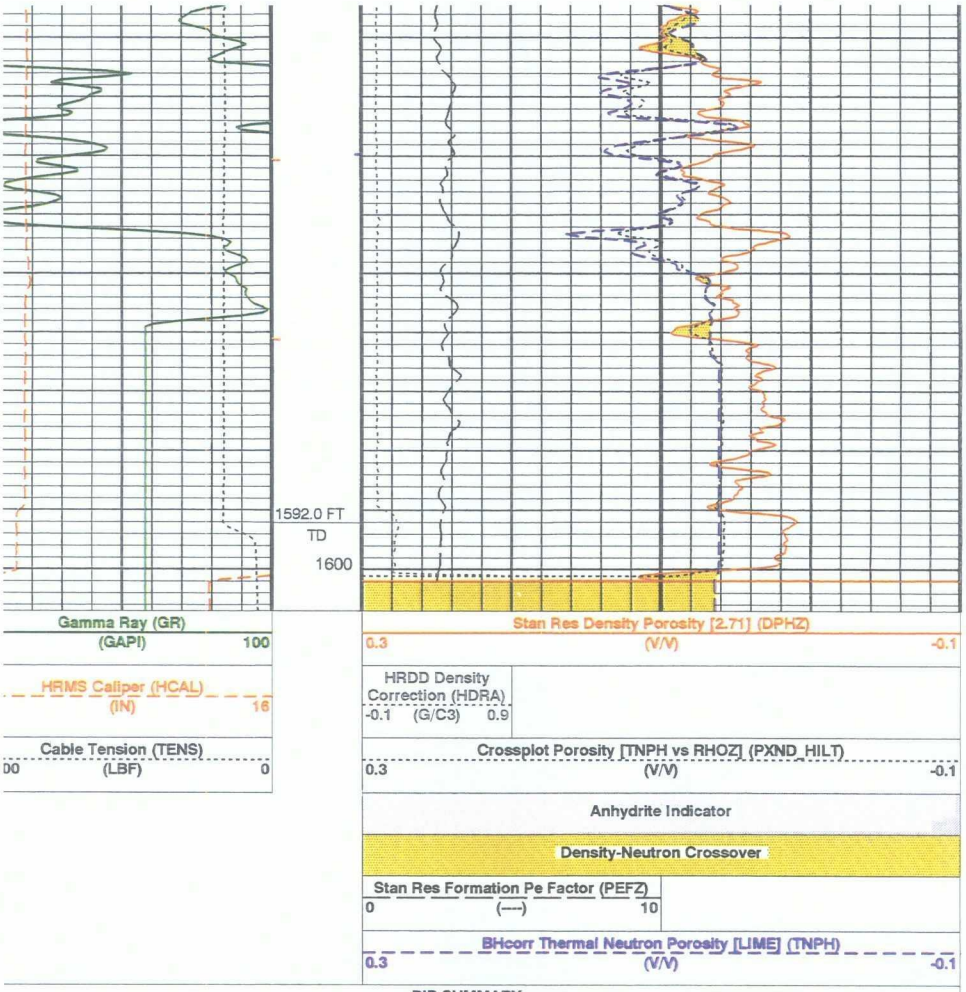
PIP SUMMARY

Integrated Borehole Volume Every 10 F3
Integrated Borehole Volume Every 100 F3
Integrated Annulus Volume Every 10 F3
Integrated Annulus Volume Every 100 F3

Time Mark Every 60 S




1300
1400



PIP SUMMARY

- Integrated Borehole Volume Every 10 F3
- Integrated Borehole Volume Every 100 F3
- Integrated Annulus Volume Every 10 F3
- Integrated Annulus Volume Every 100 F3

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value
	HILTH-FTB: High resolution Integrated Logging Tool-DTS	
BHFL	Borehole Fluid Type	WATER
BHFL_TLD	HILT Nuclear Mud Base	WATER
BHS	Borehole Status	OPEN
BSCO	Borehole Salinity Correction Option	NO
CCCO	Casing & Cement Thickness Correction Option	NO
DHC	Density Hole Correction	BS

FD	Fluid Density	1	G/C3
FSAL	Formation Salinity	-50000	PPM
FSCO	Formation Salinity Correction Option	NO	
GCLF	Germany Coal-like Formation Option	NO	
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
HSCO	Hole Size Correction Option	YES	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MCCO	Mud Cake Correction Option	NO	
MCOR	Mud Correction	NATU	
MDEN	Matrix Density	2.71	G/C3
MWCO	Mud Weight Correction Option	NO	
NAAC	HRDD APS Activation Correction	OFF	
NMT	HILT Nuclear Mud Type	NOBARITE	
NPRM	HRDD Processing Mode	HiRes	
NSAR	HRDD Depth Sampling Rate	1	IN
PTCO	Pressure/Temperature Correction Option	NO	
SDAT	Standoff Data Source	SOCN	
SHT	Surface Hole Temperature	68	DEGF
SOCN	Standoff Distance	0.125	IN
SOCO	Standoff Correction Option	YES	
HOLEV: Integrated Hole/Cement Volume			
BHS	Borehole Status	OPEN	
FCD	Future Casing (Outer) Diameter	5.5	IN
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
HVCS	Integrated Hole Volume Caliper Selection	HCAL	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
SHT	Surface Hole Temperature	68	DEGF
System and Miscellaneous			
BS	Bit Size	7.875	IN
BSAL	Borehole Salinity	300.00	PPM
CSIZ	Current Casing Size	8.625	IN
CWEI	Casing Weight	24.00	LB/F
DFD	Drilling Fluid Density	8.80	LB/G
DORL	Depth Offset for Repeat Analysis	0.0	FT
MST	Mud Sample Temperature	70.30	DEGF
RMFS	Resistivity of Mud Filtrate Sample	1.5620	OHMM
TD	Total Depth	1592	FT
TDL	Total Depth - Logger	1592.00	FT

Format: 5_nuc Vertical Scale: 5" per 100' Graphics File Created: 12-Oct-2008 19:55

OP System Version: 16C0-147

MCM

HILTH-FTB SRPC-3624-Q2_2008_OP16 DTC-H - 16C0-147

Output DLIS Files

DEFAULT TLD_MCFL_CNL_012LUP FN:10 PRODUCER 12-Oct-2008 19:55

Schlumberger

Repeat Analysis

MAXIS Field Log

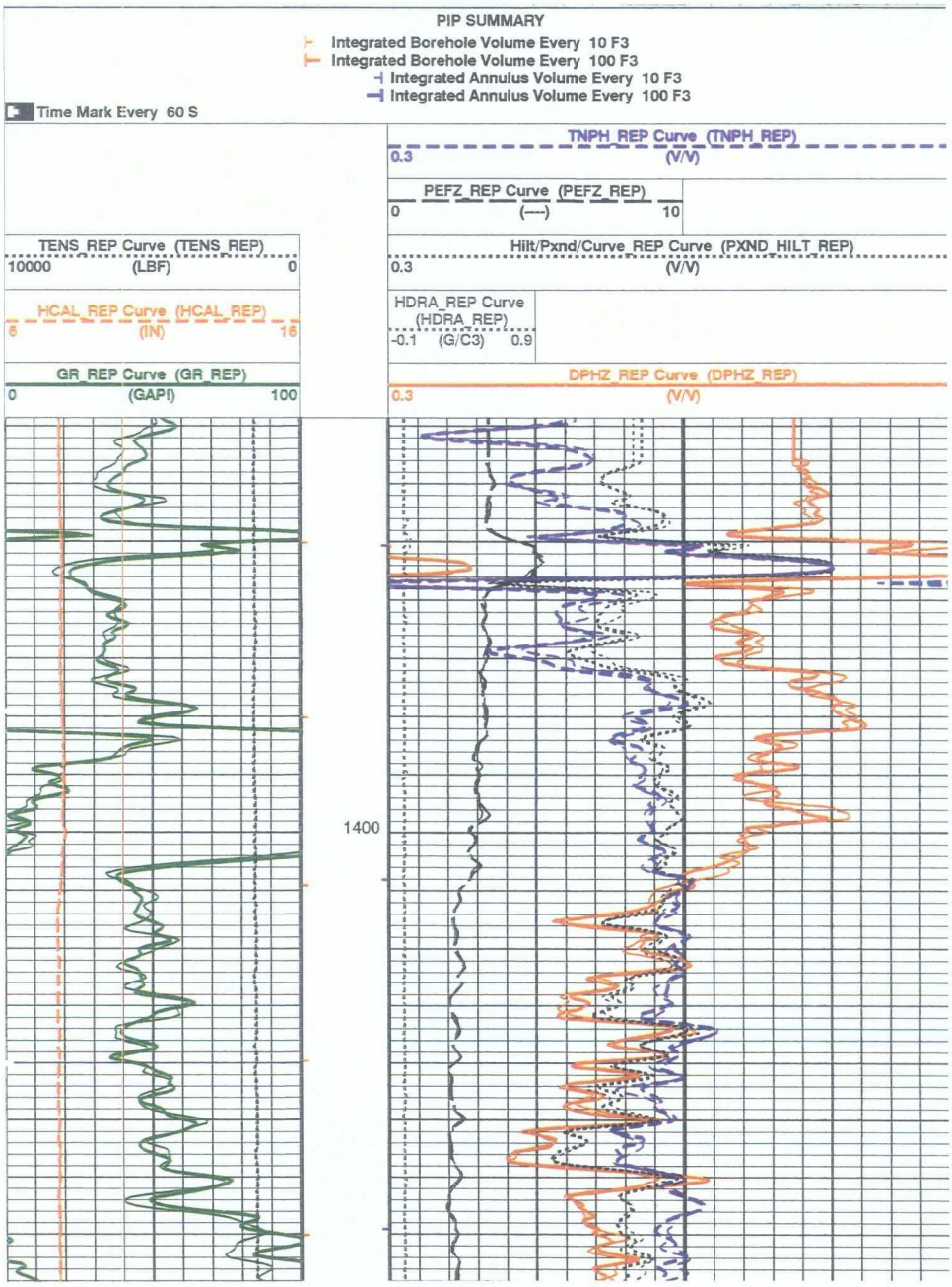
Input DLIS Files

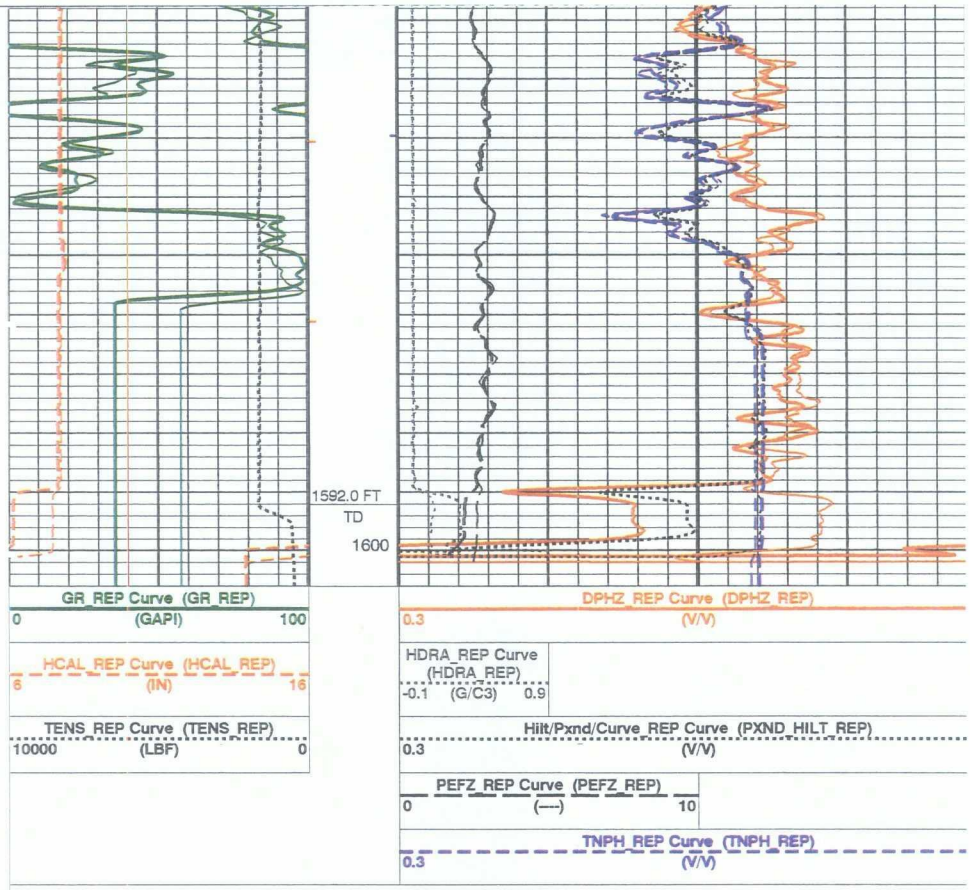
DEFAULT TLD_MCFL_CNL_011LUP FN:9 PRODUCER 12-Oct-2008 19:48 1606.0 FT 1328.5 FT

Output DLIS Files

DEFAULT TLD_MCFL_CNL_012LUP FN:10 PRODUCER 12-Oct-2008 19:55

OP System Version: 16C0-147


PIP SUMMARY
Integrated Borehole Volume Every 10 F3
Integrated Borehole Volume Every 100 F3
Integrated Annulus Volume Every 10 F3
Integrated Annulus Volume Every 100 F3
Time Mark Every 60 S
TNPH_REP Curve (TNPH_REP)
0.3 (V/V)
PEFZ_REP Curve (PEFZ_REP)
0 (---) 10
TENS_REP Curve (TENS_REP)
10000 (LBF) 0
Hilt/Pxnd/Curve_REP Curve (PXND_HILT_REP)
0.3 (V/V)
HCAL_REP Curve (HCAL_REP)
6 (IN) 16
HDRA_REP Curve (HDRA_REP)
-0.1 (G/C3) 0.9
GR_REP Curve (GR_REP)
0 (GAPI) 100
DPHZ_REP Curve (DPHZ_REP)
0.3 (V/V)
1400



PIP SUMMARY

- Integrated Borehole Volume Every 10 F3
- Integrated Borehole Volume Every 100 F3
- Integrated Annulus Volume Every 10 F3
- Integrated Annulus Volume Every 100 F3

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
	HILTH-FTB: High resolution Integrated Logging Tool-DTS		
BHFL	Borehole Fluid Type	WATER	
BHFL_TLD	HILT Nuclear Mud Base	WATER	
BHS	Borehole Status	OPEN	
BSCO	Borehole Salinity Correction Option	NO	
CCCO	Casing & Cement Thickness Correction Option	NO	
DHC	Density Hole Correction	BS	
FD	Fluid Density	1	G/C3
FSAL	Formation Salinity	-50000	PPM
FSCO	Formation Salinity Correction Option	NO	
GCLF	Germany Coal-like Formation Option	NO	
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F

SHT		Surface Hole Temperature	68	DEGF
SOCN		Standoff Distance	0.125	IN
SOCO		Standoff Correction Option	YES	
	HOLEV: Integrated Hole/Cement Volume			
BHS		Borehole Status	OPEN	
FCD		Future Casing (Outer) Diameter	5.5	IN
GCSE		Generalized Caliper Selection	HCAL	
GDEV		Average Angular Deviation of Borehole from Normal	0	DEG
GGRD		Geothermal Gradient	0.01	DF/F
HVCS		Integrated Hole Volume Caliper Selection	HCAL	
MATR		Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
SHT		Surface Hole Temperature	68	DEGF
	System and Miscellaneous			
BS		Bit Size	7.875	IN
BSAL		Borehole Salinity	300.00	PPM
CSIZ		Current Casing Size	8.625	IN
CWEI		Casing Weight	24.00	LB/F
DFD		Drilling Fluid Density	8.80	LB/G
DORL		Depth Offset for Repeat Analysis	0.0	FT
MST		Mud Sample Temperature	70.30	DEGF
RMFS		Resistivity of Mud Filtrate Sample	1.5620	OHMM
TD		Total Depth	1592	FT
TDL		Total Depth - Logger	1592.00	FT

Format: 5_nuc_REP Vertical Scale: 5" per 100' Graphics File Created: 12-Oct-2008 19:5

OP System Version: 16C0-147

MCM

HILTH-FTB	SRPC-3624-Q2_2008_OP16	DTC-H	16C0-147

Input DLIS Files

DEFAULT	TLD_MCFL_CNL_011LUP	FN:9	PRODUCER	12-Oct-2008 19:48	1606.0 FT	1328.5 FT

Output DLIS Files

DEFAULT	TLD_MCFL_CNL_012LUP	FN:10	PRODUCER	12-Oct-2008 19:55

Schlumberger

Calibrations

MAXIS Field Log

Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
High resolution Integrated Logging Tool-DTS Wellsite Calibration - Stab Measurement Summary							
Before: 11-Oct-2008 17:49							
BS Window Ratio	0.7499	N/A	0.7513	N/A	N/A	N/A	
BS Window Sum	28410	N/A	28330	N/A	N/A	N/A	CPS
SS Window Ratio	0.4835	N/A	0.4833	N/A	N/A	N/A	
SS Window Sum	12240	N/A	12230	N/A	N/A	N/A	CPS
LS Window Ratio	0.2951	N/A	0.2937	N/A	N/A	N/A	
LS Window Sum	1377	N/A	1381	N/A	N/A	N/A	CPS
High resolution Integrated Logging Tool-DTS Wellsite Calibration - Photo-multiplier High Voltages Calibrations							
Before: 11-Oct-2008 17:49							
BS PM High Voltage (Command)	1444	N/A	1482	N/A	N/A	N/A	V
SS PM High Voltage (Command)	1474	N/A	1490	N/A	N/A	N/A	V
LS PM High Voltage (Command)	1334	N/A	1349	N/A	N/A	N/A	V
High resolution Integrated Logging Tool-DTS Wellsite Calibration - Crystal Quality Resolutions Calibration							
Before: 11-Oct-2008 17:49							

Before: 11-Oct-2008 17:44

HILT Caliper Zero Measurement	8.000	N/A	7.218	N/A	N/A	N/A	IN
HILT Caliper Plus Measurement	12.00	N/A	11.63	N/A	N/A	N/A	IN

High resolution Integrated Logging Tool-DTS Wellsite Calibration - HRLT M01
Before: 12-Oct-2008 19:47

HRLT M0-M1 Voltage Plus - 0	0	N/A	-313.7	N/A	N/A	9.681	UV
HRLT M0-M1 Voltage Plus - 1	0	N/A	-314.9	N/A	N/A	9.681	UV
HRLT M0-M1 Voltage Plus - 2	0	N/A	-322.5	N/A	N/A	9.681	UV
HRLT M0-M1 Voltage Plus - 3	0	N/A	-322.8	N/A	N/A	9.681	UV
HRLT M0-M1 Voltage Plus - 4	0	N/A	-313.0	N/A	N/A	9.681	UV
HRLT M0-M1 Voltage Plus - 5	0	N/A	-317.9	N/A	N/A	9.681	UV
HRLT M0-M1 Voltage Plus - 6	0	N/A	314.6	N/A	N/A	9.681	UV
HRLT M0-M1 Voltage Plus - 7	0	N/A	-322.7	N/A	N/A	9.681	UV

High resolution Integrated Logging Tool-DTS Wellsite Calibration - HRLT M12
Before: 12-Oct-2008 19:47

HRLT M1-M2 Voltage Plus - 0	0	N/A	1722	N/A	N/A	53.42	UV
HRLT M1-M2 Voltage Plus - 1	0	N/A	1739	N/A	N/A	53.42	UV
HRLT M1-M2 Voltage Plus - 2	0	N/A	1773	N/A	N/A	53.42	UV
HRLT M1-M2 Voltage Plus - 3	0	N/A	1773	N/A	N/A	53.42	UV
HRLT M1-M2 Voltage Plus - 4	0	N/A	1717	N/A	N/A	53.42	UV
HRLT M1-M2 Voltage Plus - 5	0	N/A	1744	N/A	N/A	53.42	UV
HRLT M1-M2 Voltage Plus - 6	0	N/A	-1745	N/A	N/A	53.42	UV
HRLT M1-M2 Voltage Plus - 7	0	N/A	1781	N/A	N/A	53.42	UV

High resolution Integrated Logging Tool-DTS Wellsite Calibration - HRLT M23
Before: 12-Oct-2008 19:47

HRLT M2-M3 Voltage Plus - 0	0	N/A	1717	N/A	N/A	53.42	UV
HRLT M2-M3 Voltage Plus - 1	0	N/A	1738	N/A	N/A	53.42	UV
HRLT M2-M3 Voltage Plus - 2	0	N/A	1775	N/A	N/A	53.42	UV
HRLT M2-M3 Voltage Plus - 3	0	N/A	1781	N/A	N/A	53.42	UV
HRLT M2-M3 Voltage Plus - 4	0	N/A	1721	N/A	N/A	53.42	UV
HRLT M2-M3 Voltage Plus - 5	0	N/A	1751	N/A	N/A	53.42	UV
HRLT M2-M3 Voltage Plus - 6	0	N/A	-1732	N/A	N/A	53.42	UV
HRLT M2-M3 Voltage Plus - 7	0	N/A	1781	N/A	N/A	53.42	UV

High resolution Integrated Logging Tool-DTS Wellsite Calibration - HRLT V34
Before: 12-Oct-2008 19:47

HRLT A3-A4 Voltage Plus - 0	0	N/A	67120	N/A	N/A	2100	UV
HRLT A3-A4 Voltage Plus - 1	0	N/A	68030	N/A	N/A	2100	UV
HRLT A3-A4 Voltage Plus - 2	0	N/A	69740	N/A	N/A	2100	UV
HRLT A3-A4 Voltage Plus - 3	0	N/A	70080	N/A	N/A	2100	UV
HRLT A3-A4 Voltage Plus - 4	0	N/A	67630	N/A	N/A	2100	UV
HRLT A3-A4 Voltage Plus - 5	0	N/A	68730	N/A	N/A	2100	UV
HRLT A3-A4 Voltage Plus - 6	0	N/A	-66890	N/A	N/A	2100	UV
HRLT A3-A4 Voltage Plus - 7	0	N/A	70000	N/A	N/A	2100	UV

High resolution Integrated Logging Tool-DTS Wellsite Calibration - HRLT V45
Before: 12-Oct-2008 19:47

HRLT A4-A5 Voltage Plus - 0	0	N/A	67040	N/A	N/A	2100	UV
HRLT A4-A5 Voltage Plus - 1	0	N/A	67830	N/A	N/A	2100	UV
HRLT A4-A5 Voltage Plus - 2	0	N/A	69570	N/A	N/A	2100	UV
HRLT A4-A5 Voltage Plus - 3	0	N/A	69960	N/A	N/A	2100	UV
HRLT A4-A5 Voltage Plus - 4	0	N/A	67540	N/A	N/A	2100	UV
HRLT A4-A5 Voltage Plus - 5	0	N/A	68670	N/A	N/A	2100	UV
HRLT A4-A5 Voltage Plus - 6	0	N/A	-66660	N/A	N/A	2100	UV
HRLT A4-A5 Voltage Plus - 7	0	N/A	70000	N/A	N/A	2100	UV

High resolution Integrated Logging Tool-DTS Wellsite Calibration - HRLT V56
Before: 12-Oct-2008 19:47

HRLT A5-A6 Voltage Plus - 0	0	N/A	67060	N/A	N/A	2100	UV
HRLT A5-A6 Voltage Plus - 1	0	N/A	67960	N/A	N/A	2100	UV
HRLT A5-A6 Voltage Plus - 2	0	N/A	69660	N/A	N/A	2100	UV
HRLT A5-A6 Voltage Plus - 3	0	N/A	70020	N/A	N/A	2100	UV
HRLT A5-A6 Voltage Plus - 4	0	N/A	67550	N/A	N/A	2100	UV
HRLT A5-A6 Voltage Plus - 5	0	N/A	68650	N/A	N/A	2100	UV
HRLT A5-A6 Voltage Plus - 6	0	N/A	-66830	N/A	N/A	2100	UV
HRLT A5-A6 Voltage Plus - 7	0	N/A	70000	N/A	N/A	2100	UV

High resolution Integrated Logging Tool-DTS Wellsite Calibration - HRLT VTP
Before: 12-Oct-2008 19:47

HRLT Torpedo-M0 Voltage - 0	0	N/A	-67050	N/A	N/A	2100	UV
HRLT Torpedo-M0 Voltage - 1	0	N/A	-68280	N/A	N/A	2100	UV
HRLT Torpedo-M0 Voltage - 2	0	N/A	-70000	N/A	N/A	2100	UV
HRLT Torpedo-M0 Voltage - 3	0	N/A	-70420	N/A	N/A	2100	UV
HRLT Torpedo-M0 Voltage - 4	0	N/A	-68000	N/A	N/A	2100	UV
HRLT Torpedo-M0 Voltage - 5	0	N/A	-69110	N/A	N/A	2100	UV
HRLT Torpedo-M0 Voltage - 6	0	N/A	67060	N/A	N/A	2100	UV
HRLT Torpedo-M0 Voltage - 7	0	N/A	-70000	N/A	N/A	2100	UV

High resolution Integrated Logging Tool-DTS Wellsite Calibration - HRLT VBD

Before: 12-Oct-2008 19:47							
HRLT Source Current Plus - 0	0	N/A	280.2	N/A	N/A	8.520	UA
HRLT Source Current Plus - 1	0	N/A	281.1	N/A	N/A	8.520	UA
HRLT Source Current Plus - 2	0	N/A	281.1	N/A	N/A	8.520	UA
HRLT Source Current Plus - 3	0	N/A	281.1	N/A	N/A	8.520	UA
HRLT Source Current Plus - 4	0	N/A	281.1	N/A	N/A	8.520	UA
HRLT Source Current Plus - 5	0	N/A	281.1	N/A	N/A	8.520	UA
HRLT Source Current Plus - 6	0	N/A	281.1	N/A	N/A	8.520	UA
HRLT Source Current Plus - 7	0	N/A	281.1	N/A	N/A	8.520	UA
High resolution Integrated Logging Tool-DTS Wellsite Calibration - HRLT MV							
Before: 12-Oct-2008 19:47							
HRLT Vertical Voltage Pl - 0	0	N/A	-313.9	N/A	N/A	9.681	UV
HRLT Vertical Voltage Pl - 1	0	N/A	-308.8	N/A	N/A	9.681	UV
HRLT Vertical Voltage Pl - 2	0	N/A	-314.9	N/A	N/A	9.681	UV
HRLT Vertical Voltage Pl - 3	0	N/A	-313.5	N/A	N/A	9.681	UV
HRLT Vertical Voltage Pl - 4	0	N/A	-300.9	N/A	N/A	9.681	UV
HRLT Vertical Voltage Pl - 5	0	N/A	-320.4	N/A	N/A	9.681	UV
HRLT Vertical Voltage Pl - 6	0	N/A	321.0	N/A	N/A	9.681	UV
HRLT Vertical Voltage Pl - 7	0	N/A	-322.7	N/A	N/A	9.681	UV
High resolution Integrated Logging Tool-DTS Wellsite Calibration - Detector Calibration							
Before: 11-Oct-2008 17:44							
Gamma Ray Background	30.00	N/A	43.33	N/A	N/A	N/A	GAPI
Gamma Ray (Jig - Bkg)	170.3	N/A	170.3	N/A	N/A	15.49	GAPI
Gamma Ray (Calibrated)	165.0	N/A	165.0	N/A	N/A	15.00	GAPI
High resolution Integrated Logging Tool-DTS Wellsite Calibration - Zero Measurement							
Master: 10-Aug-2008 15:30 Before: 11-Oct-2008 17:45							
CNTC Background	26.67	26.67	26.77	N/A	N/A	4.001	CPS
CFTC Background	26.81	26.81	27.34	N/A	N/A	4.022	CPS
High resolution Integrated Logging Tool-DTS Wellsite Calibration - Ratio Measurement							
Master: 10-Aug-2008 15:30							
Thermal Near Corr. (Tank)	5800	5642	N/A	N/A	N/A	N/A	CPS
Thermal Far Corr. (Tank)	2400	2363	N/A	N/A	N/A	N/A	CPS
CNTC/CFTC (Tank)	2.159	2.388	N/A	N/A	N/A	N/A	
High resolution Integrated Logging Tool-DTS Wellsite Calibration - Accelerometer Calibration							
Before: 12-Oct-2008 19:47							
Z-Axis Acceleration	32.19	N/A	32.10	N/A	N/A	N/A	F/S2
High resolution Integrated Logging Tool-DTS Master Calibration - Inversion results							
Master: 9-Oct-2008 7:38							
Rho Aluminum	2.596	2.597	--	--	--	--	G/C3
Rho Magnesium	1.686	1.689	--	--	--	--	G/C3
Pe Aluminum	2.570	2.546	--	--	--	--	
Pe Magnesium	2.650	2.622	--	--	--	--	
High resolution Integrated Logging Tool-DTS Master Calibration - Deviation Summary							
Master: 9-Oct-2008 7:38							
BS Average Deviation	0	0.2782	--	--	--	--	%
BS Max Deviation	0	0.7451	--	--	--	--	%
SS Average Deviation	0	0.2672	--	--	--	--	%
SS Max Deviation	0	0.8221	--	--	--	--	%
LS Average Deviation	0	0.4674	--	--	--	--	%
LS Max Deviation	0	1.245	--	--	--	--	%

The GLS-VJ source activity is acceptable.

The HGNS Neutron Master Calibration was done with the following parameters :

NCT-B Water Temperature	80.0	DEGF.
Thermal Housing Size	3.374	IN.
NSR-F serial number	2184	

High resolution Integrated Logging Tool-DTS / Equipment Identification

Primary Equipment:

HILT high-Resolution Mechanical Sonde	HRMS - H	
HILT Rxo Gamma-ray Device	HRGD - H	
HILT Micro Cylindrically Focused Log Dev	MCFL - H	
GR Logging Source	GLS - VJ	5255
HILT High Res. Control Cartridge	HRCC - H	

High resolution Integrated Logging Tool-DTS Wellsite Calibration

Stab Measurement Summary

Phase	BS Window Ratio	Value	Phase	SS Window Ratio	Value	Phase	LS Window Ratio	Value
Before		0.7513	Before		0.4833	Before		0.2937
	0.7124 (Minimum) / 0.7499 (Nominal) / 0.7874 (Maximum)			0.4593 (Minimum) / 0.4835 (Nominal) / 0.5076 (Maximum)			0.2803 (Minimum) / 0.2951 (Nominal) / 0.3098 (Maximum)	
Phase	BS Window Sum CPS	Value	Phase	SS Window Sum CPS	Value	Phase	LS Window Sum CPS	Value
Before		28330	Before		12230	Before		1381
	26990 (Minimum) / 28410 (Nominal) / 29830 (Maximum)			11630 (Minimum) / 12240 (Nominal) / 12850 (Maximum)			1308 (Minimum) / 1377 (Nominal) / 1446 (Maximum)	

Before: 11-Oct-2008 17:49

High resolution Integrated Logging Tool-DTS Wellsite Calibration

Photo-multiplier High Voltages Calibrations

Phase	BS PM High Voltage (Command) V	Value	Phase	SS PM High Voltage (Command) V	Value	Phase	LS PM High Voltage (Command) V	Value
Before		1482	Before		1490	Before		1349
	1344 (Minimum) / 1444 (Nominal) / 1544 (Maximum)			1374 (Minimum) / 1474 (Nominal) / 1574 (Maximum)			1234 (Minimum) / 1334 (Nominal) / 1434 (Maximum)	

Before: 11-Oct-2008 17:49

High resolution Integrated Logging Tool-DTS Wellsite Calibration

Crystal Quality Resolutions Calibration

Phase	BS Crystal Resolution %	Value	Phase	SS Crystal Resolution %	Value	Phase	LS Crystal Resolution %	Value
Before		10.64	Before		8.626	Before		8.761
	9.620 (Minimum) / 10.62 (Nominal) / 11.62 (Maximum)			7.733 (Minimum) / 8.733 (Nominal) / 9.733 (Maximum)			7.718 (Minimum) / 8.718 (Nominal) / 9.718 (Maximum)	

Before: 11-Oct-2008 17:49

High resolution Integrated Logging Tool-DTS Wellsite Calibration

MCFL Calibration

Phase	Raw B0 Resistivity OHMM	Value	Phase	Raw B1 Resistivity OHMM	Value	Phase	Raw B2 Resistivity OHMM	Value
Before		3861	Before		3809	Before		3830
	3565 (Minimum) / 3875 (Nominal) / 4185 (Maximum)			3524 (Minimum) / 3830 (Nominal) / 4136 (Maximum)			3524 (Minimum) / 3830 (Nominal) / 4136 (Maximum)	

Before: 11-Oct-2008 17:51

High resolution Integrated Logging Tool-DTS Wellsite Calibration

HILT Caliper Calibration

Phase	HILT Caliper Zero Measurement IN	Value	Phase	HILT Caliper Plus Measurement IN	Value
Before		7.218	Before		11.63
	6.000 (Minimum) / 8.000 (Nominal) / 10.00 (Maximum)			9.000 (Minimum) / 12.00 (Nominal) / 15.00 (Maximum)	

Before: 11-Oct-2008 17:44

High resolution Integrated Logging Tool-DTS Wellsite Calibration

HRLT M01

Idx	Phase	HRLT M0-M1 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		-313.7	-322.7	-280.7	-379.7
1	Before		-314.9	-322.7	-280.7	-379.7
2	Before		-322.5	-322.7	-280.7	-379.7
3	Before		-322.8	-322.7	-280.7	-379.7
4	Before		-313.0	-322.7	-280.7	-379.7
5	Before		-317.9	-322.7	-280.7	-379.7
6	Before		314.6	322.7	379.7	280.7
7	Before		-322.7	-322.7	-280.7	-379.7
		(Minimum) (Nominal) (Maximum)				

Before: 12-Oct-2008 19:47

High resolution Integrated Logging Tool-DTS Wellsite Calibration

HRLT M12

Idx	Phase	HRLT M1-M2 Voltage Plus UV	Value	Nominal	Maximum	Minimum

6	Before		-1745	-1781	-1549	-2095
7	Before		1781	1781	2095	1549
	(Minimum)	(Nominal) (Maximum)				

Before: 12-Oct-2008 19:47

High resolution Integrated Logging Tool-DTS Wellsite Calibration

HRLT M23

Idx	Phase	HRLT M2-M3 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		1717	1781	2095	1549
1	Before		1738	1781	2095	1549
2	Before		1775	1781	2095	1549
3	Before		1781	1781	2095	1549
4	Before		1721	1781	2095	1549
5	Before		1751	1781	2095	1549
6	Before		-1732	-1781	-1549	-2095
7	Before		1781	1781	2095	1549
	(Minimum)	(Nominal) (Maximum)				

Before: 12-Oct-2008 19:47

High resolution Integrated Logging Tool-DTS Wellsite Calibration

HRLT V34

Idx	Phase	HRLT A3-A4 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		67120	70000	82360	60900
1	Before		68030	70000	82360	60900
2	Before		69740	70000	82360	60900
3	Before		70080	70000	82360	60900
4	Before		67630	70000	82360	60900
5	Before		68730	70000	82360	60900
6	Before		-66890	-70000	-60900	-82360
7	Before		70000	70000	82360	60900
	(Minimum)	(Nominal) (Maximum)				

Before: 12-Oct-2008 19:47

High resolution Integrated Logging Tool-DTS Wellsite Calibration

HRLT V45

Idx	Phase	HRLT A4-A5 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		67040	70000	82360	60900
1	Before		67830	70000	82360	60900
2	Before		69570	70000	82360	60900
3	Before		69960	70000	82360	60900
4	Before		67540	70000	82360	60900
5	Before		68670	70000	82360	60900
6	Before		-66660	-70000	-60900	-82360
7	Before		70000	70000	82360	60900
	(Minimum)	(Nominal) (Maximum)				

Before: 12-Oct-2008 19:47

High resolution Integrated Logging Tool-DTS Wellsite Calibration

HRLT V56

Idx	Phase	HRLT A5-A6 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		67060	70000	82360	60900

7	Before		70000	70000	82360	60900
	(Minimum)	(Nominal)	(Maximum)			

Before: 12-Oct-2008 19:47

High resolution Integrated Logging Tool-DTS Wellsite Calibration

HRLT VTP

Idx	Phase	HRLT Torpedo-M0 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		-67050	-70000	-60900	-82360
1	Before		-68280	-70000	-60900	-82360
2	Before		-70000	-70000	-60900	-82360
3	Before		-70420	-70000	-60900	-82360
4	Before		-68000	-70000	-60900	-82360
5	Before		-69110	-70000	-60900	-82360
6	Before		67060	70000	82360	60900
7	Before		-70000	-70000	-60900	-82360
	(Minimum)	(Nominal)	(Maximum)			

Before: 12-Oct-2008 19:47

High resolution Integrated Logging Tool-DTS Wellsite Calibration

HRLT VBD

Idx	Phase	HRLT Bridle#9-M0 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		-67040	-70000	-60900	-82360
1	Before		-68220	-70000	-60900	-82360
2	Before		-69940	-70000	-60900	-82360
3	Before		-70370	-70000	-60900	-82360
4	Before		-67970	-70000	-60900	-82360
5	Before		-69090	-70000	-60900	-82360
6	Before		67000	70000	82360	60900
7	Before		-70000	-70000	-60900	-82360
	(Minimum)	(Nominal)	(Maximum)			

Before: 12-Oct-2008 19:47

High resolution Integrated Logging Tool-DTS Wellsite Calibration

HRLT ISO

Idx	Phase	HRLT Source Current Plus UA	Value	Nominal	Maximum	Minimum
0	Before		280.2	284.0	334.1	247.0
1	Before		281.1	281.1	330.7	244.4
2	Before		281.1	281.1	330.7	244.4
3	Before		281.1	281.1	330.7	244.4
4	Before		281.1	281.1	330.7	244.4
5	Before		281.1	281.1	330.7	244.4
6	Before		281.1	281.1	330.7	244.4
7	Before		281.1	281.1	330.7	244.4
	(Minimum)	(Nominal)	(Maximum)			

Before: 12-Oct-2008 19:47

High resolution Integrated Logging Tool-DTS Wellsite Calibration

HRLT MV

Idx	Phase	HRLT Vertical Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		-313.9	-322.7	-280.7	-379.7

7	Before		-322.7	-322.7	-280.7	-379.7
	(Minimum)	(Nominal)	(Maximum)			

Before: 12-Oct-2008 19:47

High resolution Integrated Logging Tool-DTS Wellsite Calibration

Detector Calibration

Phase	Gamma Ray Background GAPI			Value	Phase	Gamma Ray (Jig - Bkg) GAPI			Value	Phase	Gamma Ray (Calibrated) GAPI			Value
Before				43.33	Before				170.3	Before				165.0
0 (Minimum)	30.00 (Nominal)	120.0 (Maximum)			154.9 (Minimum)	170.3 (Nominal)	185.8 (Maximum)			150.0 (Minimum)	165.0 (Nominal)	180.0 (Maximum)		

Before: 11-Oct-2008 17:44

High resolution Integrated Logging Tool-DTS Wellsite Calibration

Zero Measurement

Phase	CNTC Background CPS			Value	Phase	CFTC Background CPS			Value
Master				26.67	Master				26.81
Before				26.77	Before				27.34
5.000 (Minimum)	26.67 (Nominal)	40.00 (Maximum)			5.000 (Minimum)	26.81 (Nominal)	40.00 (Maximum)		

Master: 10-Aug-2008 15:30 Before: 11-Oct-2008 17:45

High resolution Integrated Logging Tool-DTS Wellsite Calibration

Ratio Measurement

Phase	Thermal Near Corr. (Tank) CPS			Value	Phase	Thermal Far Corr. (Tank) CPS			Value	Phase	CNTC/CFTC (Tank)			Value
Master				5642	Master				2363	Master				2.388
4700 (Minimum)	5800 (Nominal)	6900 (Maximum)			1900 (Minimum)	2400 (Nominal)	2900 (Maximum)			2.120 (Minimum)	2.159 (Nominal)	2.540 (Maximum)		

Master: 10-Aug-2008 15:30

High resolution Integrated Logging Tool-DTS Wellsite Calibration

Accelerometer Calibration

Phase	Z-Axis Acceleration F/S2			Value
Before				32.10
31.53 (Minimum)	32.19 (Nominal)	32.84 (Maximum)		

Before: 12-Oct-2008 19:47

High resolution Integrated Logging Tool-DTS Master Calibration

Inversion results

Phase	Rho Aluminum G/C3			Value	Phase	Rho Magnesium G/C3			Value
Master				2.597	Master				1.689
2.586 (Minimum)	2.596 (Nominal)	2.606 (Maximum)			1.676 (Minimum)	1.686 (Nominal)	1.696 (Maximum)		
Phase	Pe Aluminum			Value	Phase	Pe Magnesium			Value
Master				2.546	Master				2.622
2.470 (Minimum)	2.570 (Nominal)	2.670 (Maximum)			2.550 (Minimum)	2.650 (Nominal)	2.750 (Maximum)		

Master: 9-Oct-2008 7:38

High resolution Integrated Logging Tool-DTS Master Calibration

Deviation Summary

Phase	BS Average Deviation %			Value	Phase	SS Average Deviation %			Value	Phase	LS Average Deviation %			Value
Master				0.2782	Master				0.2672	Master				0.4674
-0.6000 (Minimum)	0 (Nominal)	0.6000 (Maximum)			-1.000 (Minimum)	0 (Nominal)	1.000 (Maximum)			-1.500 (Minimum)	0 (Nominal)	1.500 (Maximum)		
Phase	BS Max Deviation %			Value	Phase	SS Max Deviation %			Value	Phase	LS Max Deviation %			Value
Master				0.7451	Master				0.8221	Master				1.245
-1.600 (Minimum)	0 (Nominal)	1.600 (Maximum)			-2.500 (Minimum)	0 (Nominal)	2.500 (Maximum)			-3.500 (Minimum)	0 (Nominal)	3.500 (Maximum)		

Master: 9-Oct-2008 7:38

High resolution Integrated Logging Tool-DTS Master Calibration

Zero Measurement

Phase	Thermal Neut Corr. (Tank) CPS	Value	Phase	Thermal Neut Corr. (Tank) CPS	Value	Phase	CNTC/CPTC (Tank)	Value
Master		5642	Master		2363	Master		2.388
4700 (Minimum)	5800 (Nominal) 6900 (Maximum)		1900 (Minimum)	2400 (Nominal) 2900 (Maximum)		2.120 (Minimum)	2.159 (Nominal) 2.540 (Maximum)	

Master: 10-Aug-2008 15:30

DTS Telemetry Tool / Equipment Identification

Primary Equipment:	
DTC-H Auxiliary Cartridge	DTCH - A
DTC-H Telemetry Cartridge	DTCH - A
Auxiliary Equipment:	
DTCH Telemetry Cartridge Housing	ECH - KC

Company: **Hess Corporation**

Schlumberge

Well: **Mitchell 1830-092F**
Field: **West Bravo Dome**
County: **Harding**
State: **NM**

PLATFORM EXPRESS
Triple Detector Litho-Density
Compensated Neutron / Gamma Ray

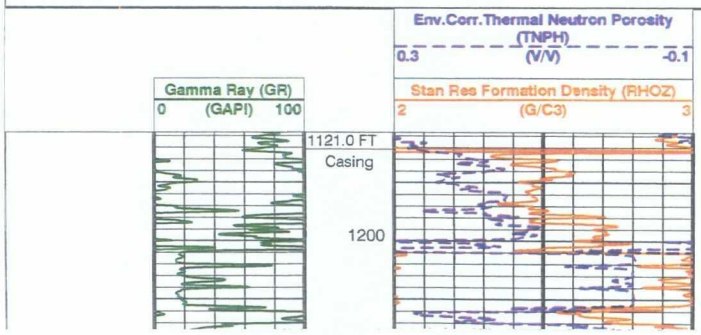
Output DLIS Files

DEFAULT TLD_MCFL_CNL_012LUP FN:10 PRODUCER 12-Oct-2008 19:55

OP System Version: 16C0-147

MCM

HILTH-FTB SRPC-3624-Q2_2008_OP16 DTC-H 16C0-147



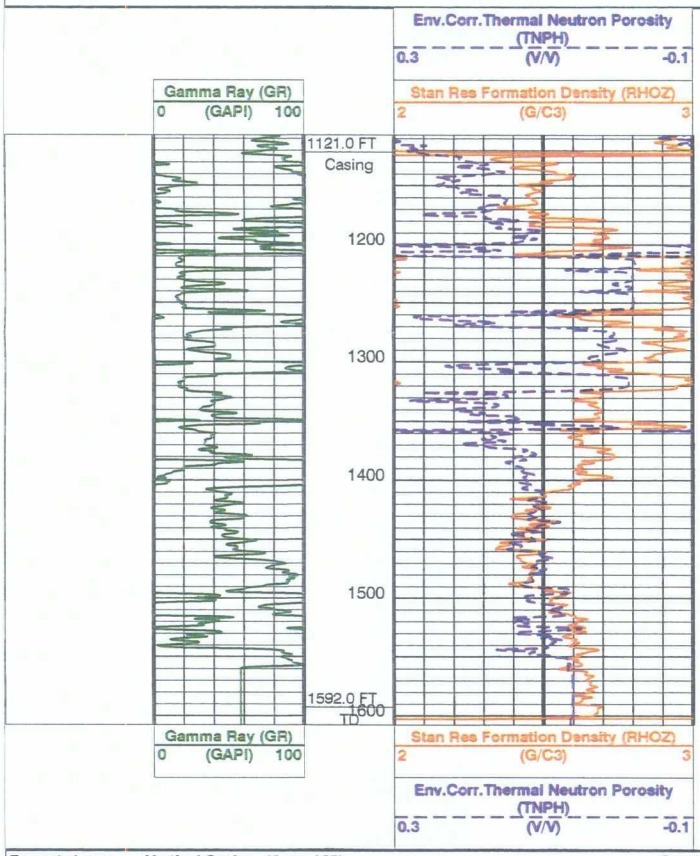
Output DLIS Files

DEFAULT TLD_MCFL_CNL_012LUP FN:10 PRODUCER 12-Oct-2008 19:55

OP System Version: 16C0-147

MCM

HILTH-FTB SRPC-3624-Q2_2008_OP16 DTC-H 16C0-147



Format: 1_nuc Vertical Scale: 1" per 100' Graphics File Created: 12-Oct-2008 19:55

OP System Version: 16C0-147

MCM

HILTH-FTB SRPC-3624-Q2_2008_OP16 DTC-H 16C0-147

Output DLIS Files

DEFAULT TLD_MCFL_CNL_012LUP FN:10 PRODUCER 12-Oct-2008 19:55

XI.

XI. Chemical analysis fo fresh water.

No fresh water well within 1 mile of well Mitchell 1830-092F

XII.

Geological Statement

- **A statement affirming available geologic and engineering data has been examined and no evidence of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water were found**

  - All available geologic and engineering data has been examined. The well has been position in such a way that is at least 1 mile away from any well where no firm data on vertical sealing is available. All the surrounding 0.5 mile wells are known to have good borehole cement bond or proper plug
  - And also in the surrounding 0.5 mile radius around the SWD well location no evidence of open faults, or any other hydrologic connection between the disposal zone and either the overlying formation (Glorieta: no hydrocarbon, possible CO2) or underlying formation (Cimarron: no hydrocarbon and not a fresh water producer) exist.
  - As stated in the Geological data sheet, no wells in the surrounding 0.5 mile from the SWD well location are known to used either the overlying formation (Glorieta) or the underlying formation (Cimarron) as a source for fresh water.

WBD Geologist:

Germawan Slamet

WBD Engineer:

Ashish Mendjoge

XIII.

PROOF OF NOTICE

HARDING LEGAL
H176

NOTICE OF APPLICATION FOR DISPOSAL WELL PERMIT

Hess Corporation, P.O. Box 840, Seminole, TX 79360 is applying to The State of New Mexico; Energy, Minerals and Natural Resources Department, Oil Conservation Division for a SWD (Salt Water Disposal) permit to inject fluid into a formation.

The application proposes to inject fluid into the YESO Formation, Mitchell 1830 Well No. 092F. The proposed injection well is located 13 miles east of Mosquero, NM in Mitchell field in Harding County. Lot number F, Section 9, Township 18N, Range 30E, 1920 feet from the North line and 1970 feet from the West line in Harding County, New Mexico. Fluid will be injected into strata in the Yeso. The projected Depth average is 1940 feet and the projected pressures 318 psi.

LEGAL AUTHORITY: Requests for a public hearing from Persons who can show they are adversely affected, or requests for further information concerning any aspect of the application should be submitted in writing, within fifteen days of publication, to the Oil Conservation Division, 1220 South St. Francis Dr., Santa Fe, New Mexico 87505. Telephone (505)476-3470.

Published in the *Union County Leader* On 5-27; 6-3 & 6-10-09

5-27; 6-3, 6-10

* Proof Copy + Charge:

69 Lines

X 2.00 3 Runs 5-27; 6-3 & 6-10-09

$138.00

+ 10.70 TAX (Required in New Mexico)

$148.70 TOTAL DUE

Jones, William V., EMNRD

From: Martin, Ed, EMNRD
Sent: Wednesday, June 17, 2009 1:42 PM
To: Jones, William V., EMNRD
Cc: rsmith@hess.com
Subject: FW: SWD affidavit May 27 ~2009.pdf - Adobe Acrobat Professional
Attachments: SWD affidavit May 27 ~2009.pdf

Will, FYI.

Rita, yes please put a copy in the mail to Will Jones.

Thanks.

Ed Martin
District IV Supervisor
New Mexico Oil Conservation Division
1220 S. St. Francis
Santa Fe, NM 87505
505-476-3470 phone
505-476-3462 fax
505-690-2365 cell
ed.martin@state.nm.us

From: Smith, Rita [mailto:rsmith@Hess.com]
Sent: Monday, June 15, 2009 3:58 PM
To: Martin, Ed, EMNRD
Subject: SWD affidavit May 27 ~2009.pdf - Adobe Acrobat Professional

Here is the affidavit from the Union County Leader. I can put a copy in the mail also if I need to.
Thank you
Have a great evening...
Rita

<<SWD affidavit May 27 ~2009.pdf>>

This inbound email has been scanned by the MessageLabs Email Security System.

Jones, William V., EMNRD

From: Ponville, Robert [rponville@hess.com]
Sent: Tuesday, May 26, 2009 2:36 PM
To: Stoll, Dale; Holcomb, Danny; Jones, William V., EMNRD
Subject: FW: Article

FYI

The legal notice for the SWD is set to run in the paper on the dates listed below.

Thank you,

Robert Ponville

Petroleum Engineer

Hess Corporation

Off: 432.758.6728

Cell:432.209.0417

rponville@hess.com

From: Smith, Rita
Sent: Tuesday, May 26, 2009 3:31 PM
To: Ponville, Robert
Subject: Article

The SWD legal notice will run in May 27, June 3, and June 10

Rita C Smith

Engineering Technician

Hess Corporation

Office (432) 758-6726

Cell (432) 209-1084

Fax Number (432) 758-6768

rsmith@hess.com

This inbound email has been scanned by the MessageLabs Email Security System.

AFFIDAVIT OF PUBLICATION

State of New Mexico
County of Union **SS.**

The undersigned, being first duly sworn according to law, on her oath deposes and says that she is the office manager of the newspaper named the *Union County Leader* and that she has personal knowledge of the facts stated herein: That the said *Union County Leader* is a weekly newspaper of general paid circulation in Union and Harding Counties published in the County of Union and State of New Mexico; entered under the second class privilege at the U.S. Post Office at Clayton, Union County, New Mexico, and having been uninterruptedly and continuously so printed and published during a period of more than six months next to the date of the printing of the first publication concerning which this affidavit is made and a copy of which is hereto attached; that the said publication, a printed copy of which is hereto attached and made a part of this affidavit, was published in said newspaper once each week for three successive weeks, and that payment for said publication has been made or assessed as part of the court costs to which it relates; said publications having been made on the following dates, to wit:

1st publication: the 27th day of May, 2009
2nd publication: the 3rd day of June, 2009
3rd publication: the 10th day of June, 2009
4th publication: the / day of /, 20/

Union County Leader

Patricia Herrera

Patricia Herrera, Office Manager

Subscribed and sworn to before me this 11th day of June, 2009

Mary Sue "Brandy" Payton

Mary Sue "Brandy" Payton
Notary Public, Union County, New Mexico
My commission expires December 13, 2011

Publisher's Bill:

69 lines, Three times $138.00

____ inches, display ____ times $____

Tax $10.70

Total $148.70

Received payment:

NOTICE OF APPLICATION FOR DISPOSAL WELL PERMIT

Hess Corporation, P.O. Box 840, Seminole, TX 79360 is applying to The State of New Mexico; Energy, Minerals and Natural Resources Department, Oil Conservation Division for a SWD (Salt Water Disposal) permit to inject fluid into a formation.

The application proposes to inject fluid into the YESO Formation, Mitchell 1830 Well No. 092F. The proposed injection well is located 13 miles east of Mosquero, NM in Mitchell field in Harding County. Lot number F, Section 9, Township 18N, Range 30E, 1920 feet from the North line and 1970 feet from the West line in Harding County, New Mexico. Fluid will be injected into strata in the Yeso. The projected Depth average is 1940 feet and the projected pressures 318 psi.

LEGAL AUTHORITY: Requests for a public hearing from Persons who can show they are adversely affected, or requests for further information concerning any aspect of the application should be submitted in writing, within fifteen days of publication, to the Oil Conservation Division, 1220 South St. Francis Dr., Santa Fe, New Mexico 87505. Telephone (505)476-3470.

Published in the *Union County Leader* On 5-27; 6-3 & 6-10-09

5-27; 6-3, 6-10

Smith, Rita

From: Hughart, Jim
Sent: Tuesday, May 19, 2009 11:13 AM
To: Mitchell, Terry
Cc: Smith, Rita
Subject: FW: Information and waivers

Attachments: 05-2009 Complete Package for SWD .pdf; Mitchell & Son Inc WAIVER NMex SWD May 19 2009.doc

Terry,

Hess is on location in Sec. 9 just southeast of the plant at the SWD well on Mike's property preparing to deepen the well to the Yeso and test the water in that formation for potential water disposal. Rita Smith, in our Seminole office, has prepared the attached waiver for your review and execution. Please open the Word document, print and sign it and fax it back to Rita at (432) 758-6768. When she receives it, she will file it along with the water disposal application to the OCD. That application is also attached in a PDF format for your information.

FYI, Mike Fitzgerald is preparing a similar waiver.

If you have any questions or comments, please call me.

Thanks!

Jim Hughart
Hess Corporation
713-609-5517
jhughart@hess.com

05-2009 Complete Package for S... Mitchell & Son Inc WAIVER NMe...

Hess Corporation
Rita Smith
P. O. Box 840
100 N. W. 7th Street
Seminole, Texas 79360
Office (432) 758-6726
Fax (432) 758-6768
rsmith@hess.com

May 19, 2009

T. E. Mitchell & Son, Inc.

WAIVER OF OBJECTION TO INJECT FLUID

T. E. Mitchell & Son, Inc. has received notice of Hess Corporation's application for Authorization to inject fluid into the YESO Formation, Mitchell 1830 Well No. 092F API 30-021-20494. The proposed injection well is located 13 miles east of Mosquero, NM in Mitchell field in Harding County. Lot number F, Section 9, Township 18N, Range 30E, 1920 feet from the North line and1970 feet from the West line in Harding County, New Mexico. Fluid will be injected into strata in the Yeso.

I, Terry R. Mitchell, President of T.E. Mitchell & Son, Inc. the undersigned, hereby waive the right to object to the New Mexico Oil Conservation Division's administrative approval of this Authorization to for application for SWD (Salt Water Disposal) permit.

Terry R Mitchell
SIGNATURE

Terry R. Mitchell, President
T.E. Mitchell & Son, Inc

5-20-09
DATE

Smith, Rita

From: Hughart, Jim
Sent: Tuesday, May 19, 2009 10:56 AM
To: Mike Fitzgerald (ffcattleco@plateautel.net)
Cc: Smith, Rita
Subject: Information and waivers

Attachments: 05-2009 Complete Package for SWD .pdf; Fitzgerald F&F Family limited Partnership WAIVER NMex SWD May 19 2009.doc

Mike,

As I'm sure you already know, Hess is on location in Sec. 9 at the SWD preparing to deepen the well to the Yeso and test the water in that formation for potential water disposal. Rita Smith, in our Seminole office, has prepared the attached waiver for your review and execution. Please open the Word document, print and sign it and fax it back to Rita at (432) 758-6768. When she receives it, she will file it along with the water disposal application to the OCD. That application is also attached in a PDF format for your information. You don't need to do anything with this and may print it and/or delete it if you like.

If you have any questions or comments, please call me.

Jim Hughart
Hess Corporation
713-609-5517
jhughart@hess.com

05-2009 Complete Package for S...

Fitzgerald F&F Family limited...

Hess Corporation
Rita Smith
P. O. Box 840
100 N. W. 7th Street
Seminole, Texas 79360
Office (432) 758-6726
Fax (432) 758-6768
rsmith@hess.com

May 19, 2009

F&F Family Limited Partnership

WAIVER OF OBJECTION TO INJECT FLUID

F&F Family Limited Partnership has received notice of Hess Corporation's application for Authorization to inject fluid into the YESO Formation, Mitchell 1830 Well No. 092F API 30-021-20494. The proposed injection well is located 13 miles east of Mosquero, NM in Mitchell field in Harding County. Lot number F, Section 9, Township 18N, Range 30E, 1920 feet from the North line and1970 feet from the West line in Harding County, New Mexico. Fluid will be injected into strata in the Yeso.

I, Michael S. Fitzgerald of F&F Family Limited Partnership, the undersigned, hereby waive the right to object to the New Mexico Oil Conservation Division's administrative approval of this Authorization to for application for SWD (Salt Water Disposal) permit.

SIGNATURE
Michael S. Fitzgerald
F&F Family Limited Partnership

DATE

XIV.

Jones, William V., EMNRD

From: Jones, William V., EMNRD
Sent: Thursday, April 30, 2009 2:41 PM
To: 'Smith, Rita'
Cc: Martin, Ed, EMNRD; Ezeanyim, Richard, EMNRD
Subject: Disposal Application from Hess: Mitchell 1830 #92F 30-021-20494

Hello Rita:
Ed gave me your supplied information and asked me to review what it would take to apply for the Yeso open hole disposal in this well rather than the Glorieta as originally planned.

The change of depths and formation require a new application from Hess with new notices to all affected parties including newspaper notice. Be sure and add a layman's location description to the end of your new posted newspaper notice… i.e. "25 miles NE of Logan". The mailed certified notices must include the entire C-108 application. Be sure and send the original to Karen Allison in this Santa Fe office for logging in and processing - with an "administrative order checklist" as a cover sheet. Send a copy to Ed Martin as manager of the District IV office, all operational issues must be approved through him.

Some items and questions to consider as you prepare this:
Why do you need to run the FJ liner? If you can squeeze the existing perfs adequately so as to hold pressure during MIT tests, this may not be necessary. The liner may restrict any future fishing operations. Talk this over with Ed Martin and decide.

Please include the location map in the application with the ½ mile circle drawn around the subject well and not around the surrounding wells - as was in the original application.

Please plan on running resistivity and porosity logs on the planned open hole in the Yeso as well as swab testing. The open hole log data will be needed, unless you can show from logs on nearby wells what this lithology and inferred insitu water salinity appears to be.

If salinities appear fine and Hess does an injectivity test that shows additional pressure may be needed – you can immediately run a Step Rate Test and submit the data with the C-108 to be permitted for a surface injection pressure greater than 318 psi. The 318 psi limit is calculated by using the 1592 foot depth to the top of the planned open hole, times a 0.2 gradient.

Please have your reservoir engineer and/or geologist talk briefly about whether injection into this Yeso interval would be confined to this interval and how it would not migrate into the Tubb or otherwise endanger CO2 reserves. What is the top of the Tubb in this well's location?

Other items that were missing from the original application – but may be fine now (please check):

1) All logs should be turned in to the OCD (Ed Martin) and scanned into the Online Imaging system so they are available by the engineering bureau and to those parties noticed in this application.

2) Your application says no wells are within 1/2 mile - but some show up on our records. Please send detailed wellbore diagrams with API numbers, casing, cement, etc of all wells (Plugged and Active) within 1/2 mile of this well. You must provide evidence that all surrounding wells are adequately cemented.

3) Will the tubing be plastic lined? If not, do you have permission from the District IV Manager (Ed Martin) for this?

4) At this time it appears Hess' Rule 5.9 status concerning inactive wells and financial security are both fine.

5) You did not mention whether Hess has the mineral rights leased in the Yeso under this well and within 1/2 mile of this well?

If approved, the resulting SWD permit will have a conditional clause stating that the insitu water salinity must be verified to be less than 10,000 mg/l of TDS.

As soon as you get the application package in, we will evaluate it and let you know of any problems. We can then release it after the 15 day suspense period.

Thank You,

William V. Jones PE
New Mexico Oil Conservation Division
1220 South St. Francis
Santa Fe, NM 87505
505-476-3448

Tracking:

Jones, William V., EMNRD

From: Ponville, Robert [rponville@hess.com]
Sent: Tuesday, May 26, 2009 11:43 AM
To: Jones, William V., EMNRD
Cc: Martin, Ed, EMNRD; Holcomb, Danny; Stoll, Dale; Martinez, Joaquin; Edgar, Robert
Subject: Yeso Permitting
Attachments: WBD_SWD_Permitting_for_NMOCD_Updated_V2.pdf; Yeso TDS from Cardinal.pdf

Will,

Attached below is the supporting geological data for the West Bravo Dome SWD C-108. It contains the background data we discussed including: zone descriptions, communication between zones, log analysis of formation water, ect. Directly below are the swabbing results, pump in test summary and a plan forward.

Yeso Swab Test Results:

On 5/21/09 well Mitchell 1830-092F was drilled out to 1700' with fresh water and a packer was run and set below the Glorietta perforations with tailpipe to ~25' off bottom.

On 5/22/09 the well was swabbed back and samples were taken. After the calculated tubing volume and annulus volume (below packer) were swabbed back the well went dry and no more fluid was recovered. The packer was unset and re-set with the tubing within 1 foot of bottom. The well was again swabbed dry after recovering the tubing and annulus volumes. The well was left open to atmosphere for 1 hour between swab runs with all the swab attempts coming back dry. The well was then shut-in over night.

On 5/23/09 the crew arrived on location to find ~ 80psi of gas pressure on the well and bled it off. The first swab run returned less than 1 barrel of water and all subsequent runs were dry. At this point the crew pulled the tubing and packer from the hole and re-ran the packer with out tail pipe to perform a pump in test.

All samples were field tested for chloride levels and the samples obtained on 5/22/09 were tested for TDS levels by Cardinal Laboratories in Hobbs, NM. All field chloride tests were done by titration with mercuric nitrate and titrated after one drop indicating that the chlorides were less than 1,000 mg/L. Cardinal's TDS tests are attached below and show the same results of less than 1,300 mg/L of total dissolved solids. These tests along with swabbing the well dry, waiting and swabbing again seem to show that the Yeso formation will not deliver any formation water and that all fluids recovered were the fresh water that was used for drilling and well control.

As reference points the fluid recovered from the Glorietta formation during swabbing attempts in January were determined to be ~ 6,000 mg/L of total dissolved solids and produced water from the underlying Tubb formation have TDS levels ranging from 23,000 mg/L to 64,000 mg/L.

Pump in Test Results:

A pump in test with fresh water was performed on 5/23/09 to determine the surface rates and pressures the Yeso formation was capable of. During the test a fluid column was established and maintained on the tubing casing annulus above the packer to ensure that the Yeso formation was not communicating with the Glorietta perforations. Rates and pressures were monitored on the Nabors Services reverse pump used.

An initial rate of 0.229 BPM (330 bbl/d) was established at 820 psi surface pressure. This rate was held constant and the pressure fell off to 600 psi were it settled. The rate was then increased to 0.5 BPM (720 bbl/d) and the pressure increased and leveled off at 660 psi. The rate was then increased to 1 BPM (1440 bbl/d) and the initial pressure was 750 psi, 5 minutes later the pressure had dropped to 730 psi at the same rate, then 720 psi 5 minutes after that and finally after 15 minutes of pumping at 1 BPM the pressure was down to 710 psi. The pump was then shut down after a total of 31 barrels of fresh water had been injected into the formation. The initial shut down pressure, 5 min, 10 min and 15 min pressures were 600, 250, 200 and 160 psi respectively.

Plans Forward:

The crew is currently scheduled to return to work tomorrow 5/26/09 and will pull the packer and run a plastic coated injection packer on IPC tubing with the intent to leave the well ready to inject into the Yeso formation if a permit is granted.

Please let me know if you have any questions or concerns.

Thank you,

Robert Ponville

Petroleum Engineer

Hess Corporation

Off: 432.758.6728

Cell: 432.209.0417

rponville@hess.com

<<WBD_SWD_Permitting_for_NMOCD_Updated_V2.pdf>>

<<Yeso TDS from Cardinal.pdf>>

This inbound email has been scanned by the MessageLabs Email Security System.

CARDINAL LABORATORIES

PHONE (575) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
HESS CORPORATION
ATTN: ROBERET PONVILLE
P.O. BOX 840
SEMINOLE, TX 79360
FAX TO: (432) 758-6768

Receiving Date: 05/22/09
Reporting Date: 05/26/09
Project Number: NOT GIVEN
Project Name: SWD YESO TEST
Project Location: WEST BRAVO DOME

Sampling Date: 05/22/09
Sample Type: WASTEWATER
Sample Condition: COOL & INTACT @ 2.5°C
Sample Received By: 05/22/09
Analyzed By: HM

LAB NUMBER	SAMPLE ID	TDS (mg/L)
Analysis Date:		05/23/09
H17485-1	1	675
H17485-2	2	1,130
H17485-3	4	1,280
H17485-4	5	1,050
Quality Control		NR
True Value QC		NR
% Recovery		NR
Relative Percent Difference		0.3

METHOD: EPA 600/4-79-020	160.1

Chemist

05/26/09
Date

PLEASE NOTE: **Liability and Damages.** **Cardinal's** liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by **Cardinal** within thirty (30) days after completion of the applicable service. In no event shall **Cardinal** be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by **Cardinal**, regardless of whether such claim is based upon any of the above-stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

H17485 HESS

CARDINAL LABORATORIES

101 East Marland, Hobbs, NM 88240
(575) 393-2326 Fax (575) 393-2476

Page____ of ____

Company Name:	Hess Corporation
Project Manager:	Robert Ponville
Address:	100 NW 7th Street / PO Box 840
City:	Seminole State: TX Zip: 79360
Phone #:	432-758-6728 Fax #: 432-758-6768
Project #:	Mitchel 1230-092F Project Owner: Robert Ponville
Project Name:	SWD Pecos Test
Project Location:	Near Pecos Dome
Sampler Name:	Robert Ponville

BILL TO

P.O. #:	
Company:	
Attn:	Same
Address:	
City:	
State:	Zip:
Phone #:	
Fax #:	

ANALYSIS REQUEST

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	PRESERV.: ACID/BASE:	ICE / COOL	OTHER:	SAMPLING DATE	TIME	TDS
1	1		1		✓						✓		5/22/09		✓
2	2		1		✓						✓				✓
3	4		1		✓						✓				✓
4	5		1		✓						✓				✓

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Sampler Relinquished:	Date:	Received By:	
	Time:		
Relinquished By: Robert Ponville	Date: 5/22/09 Time: 9:45	Received By: Celey Keene	
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	Temp. 2.5°C	Sample Condition Cool: ☑ Yes ☐ No Intact: ☑ Yes ☐ No	CHECKED BY: (Initials)

Phone Result: ☐ No Add'l Phone #:
Fax Result: ☐ No Add'l Fax #:
REMARKS: Rush

e-mail: rponville@hess.com

† Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2476.

Schlumberger

HESS CORPORATION

MITCHELL 1830-09 F

West Bravo Dome

Harding State, NM

PLATFORM EXPRESS

High Resolution Laterolog Array

MCFL / Gamma Ray

County: Harding
Field: West Bravo Dome
Location: 1920' FNL & 2170' FWL
Well: MITCHELL 1830-09 F
Company: HESS CORPORATION

LOCATION

1920' FNL & 2170' FWL
Section 9, Township 18N, Range 30E

Elev.: K.B. 4368 ft
G.L. 4362 ft
D.F. 4367 ft

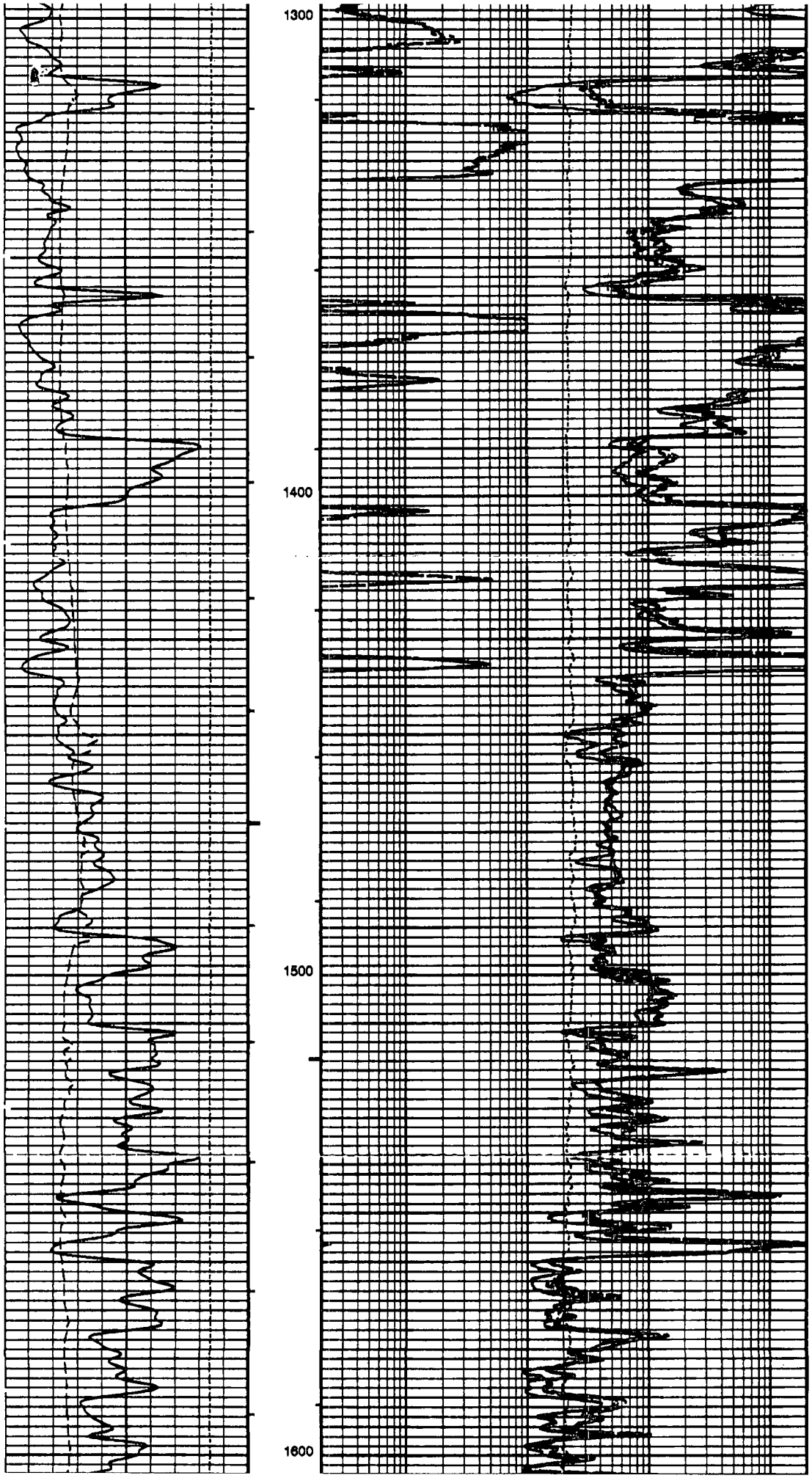
Permanent Datum: GROUND LEVEL — Elev.: 4362 ft
Log Measured From: KELLY BUSHING — 6.0 ft above Perm. Datum
Drilling Measured From: KELLY BUSHING

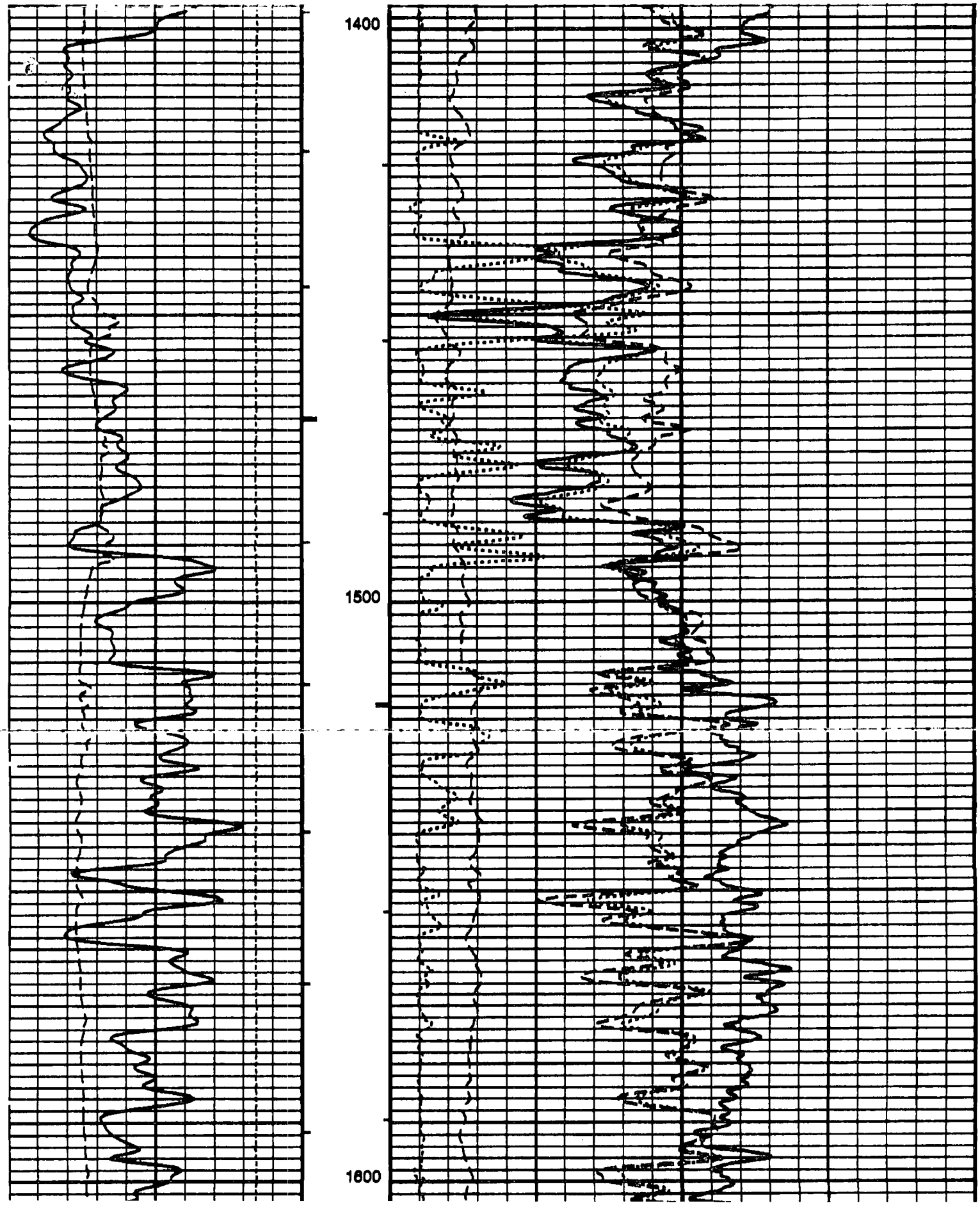
API Serial No.	Section:	Township:	Range:
30-021-20443	9	18N	30E

Logging Date		20-Jun-2007					
Run Number		1					
Depth Driller		2237 ft					
Schlumberger Depth		2230 ft					
Bottom Log Interval		2192 ft					
Top Log Interval		782 ft					
Casing Driller Size @ Depth		8.625 in @ 768 ft				@	
Casing Schlumberger		782 ft					
Bit Size		7.875 in					
Type Fluid In Hole		Brine					
MUD Density	Viscosity	8.5 lbm/gal	35 s				
MUD Fluid Loss	PH		9				
Source Of Sample		mud pit					
RM @ Measured Temperature		2.400 ohm.m @ 87 degF				@	
RMF @ Measured Temperature		2.400 ohm.m @ 87 degF				@	
RMC @ Measured Temperature			@			@	
Source RMF	RMC						
RM @ MRT	RMF @ MRT	2.400 @ 87	2.400 @ 87		@		@
Maximum Recorded Temperatures		87 degF					
Circulation Stopped	Time	20-Jun-2007	2:15				
Logger On Bottom	Time	20-Jun-2007	11:02				
Unit Number	Location	3076	Hobbs, NM				
Recorded By		Ryan Bedford					
Witnessed By		Greg Olson, Don Riggs					

Logging Date		
Run Number		
Depth Driller		
Schlumberger Depth		
Bottom Log Interval		
Top Log Interval		
Casing Driller Size @ Depth		
Casing Schlumberger		
Bit Size		
Type Fluid In Hole		
MUD Density	Viscosity	
MUD Fluid Loss	PH	
Source Of Sample		
RM @ Measured Temperature		
RMF @ Measured Temperature		
RMC @ Measured Temperature		
Source RMF	RMC	
RM @ MRT	RMF @ MRT	
Maximum Recorded Temperatures		
Circulation Stopped	Time	
Logger On Bottom	Time	
Unit Number	Location	
Recorded By		
Witnessed By		

offset well


1300
1400
1500
1600


1400
1500
1600

Possible Class I

Injection Permit Checklist (7/8/08)

Case _____ R-_____ SWD 1181 WFX_____ PMX_____ IPI_____ Permit Date 6/18/09 UIC Qtr (A. M. J.)

Wells 1 Well Name: MITCHell 1830 092F

API Num: (30-) 021-20494 Spud Date: 6/21/07 New/Old: N (UIC primacy March 7, 1982)

Footages 1920 FNL/1970 FWL Unit F Sec 9 Tsp 18N Rge 30E County Harding

Operator: Hess Corporation Contact RITA SMITH

OGRID: ~~[illegible]~~ 495 RULE 40 Compliance (Wells) 0/54 (Finan Assur) _____

Operator Address: P.O. Box 840, SEMINOLE, TX, 79360

Current Status of Well: _____

Planned Work to Well: _____ Planned Tubing Size/Depth: 2 3/8 @ 1500

	Sizes Hole.....Pipe	Setting Depths	Cement Sx or Cf	Cement Top and Determination Method
Existing ___ Surface	11 8 5/8	1121	470	Surf
Existing ___ Intermediate	5 1/2 4" FJ.		75	CIRC
Existing ___ Long String	7 7/8 5 1/2	1592	130	CIRC

New

~~DV Tool~~ _____ Liner 4" FJ 0-1570' Open Hole 1592-1800 Total Depth 1800 ~~PBTD~~ _____

Well File Reviewed _____

Diagrams: Before Conversion ✓ After Conversion ✓ Elogs in Imaging File: No — Need Deep Res

Intervals:	Depths	Formation	Producing (Yes/No)
Above (Name and Top)			
Above (Name and Top)	~~[illegible]~~ 1500	~~SA~~ Top Yso	
Injection..... Interval TOP:	~~[illegible]~~ 1592	~~CLOR~~ Yso	150
Injection..... Interval BOTTOM:	~~[illegible]~~ 1800	~~CLOR~~	
Below (Name and Top)	1995	Tubb	

670 SR Test

~~2810~~ PSI Max. WHIP

✓ Open Hole (Y/N)

~~Deviated Hole?~~

~~Top of Yso~~

~~Only Run Liner~~

~~Run Logs~~

~~New Hampshire~~

~~Run SRT~~

~~If Needed~~

~~Run CBL~~

1592 34 8.4

1995 12 2910

Sensitive Areas: ~~Capitan Reef~~ _____ ~~Cliff House~~ _____ ~~Salt Depths~~ _____

.... ~~Potash Area (R-111-P)~~ _____ ~~Potash Lessee~~ _____ ~~Noticed?~~ _____

Fresh Water: Depths: 0-30' Wells(Y/N) None Analysis Included (Y/N): _____ Affirmative Statement ✓

Salt Water: Injection Water Types: Tubb Analysis? _____

Injection Interval.....Water Analysis: _____ Hydrocarbon Potential _____

Notice: Newspaper(Y/N) ✓ Surface Owner ~~[illegible]~~ T & F Family L.P. Mineral Owner(s) _____

RULE 701B(2) Affected Parties: T.E. Mitchell & Son, Inc 400 BWPD Max

Area of Review: Adequate Map (Y/N) ✓ and Well List (Y/N) ✓

Active Wells 2 Num Repairs 0 Producing in Injection Interval in AOR No

..P&A Wells 0 Num Repairs 0 All Wellbore Diagrams Included? _____

~~No wells within 1/2 mile?~~

Questions to be Answered:

~~Map with 1/2 Mile Rad.~~

~~What Geology is Pumping Pop Space (40/0 SW)~~

Fault Off.

Required Work on This Well: _____ Request Sent _____ Reply: _____

AOR Repairs Needed: _____ Request Sent _____ Reply: _____

_____ Request Sent _____ Reply: _____